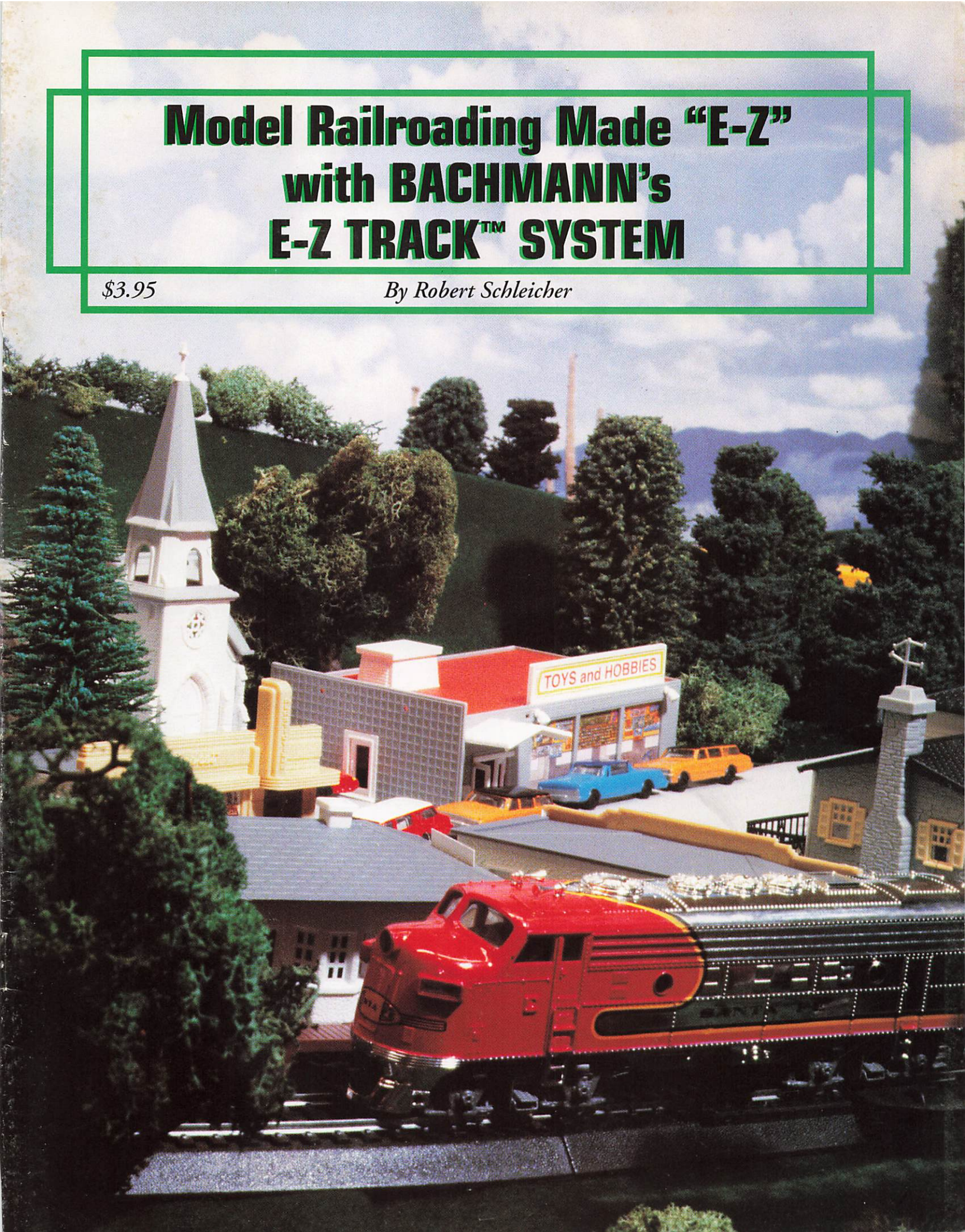
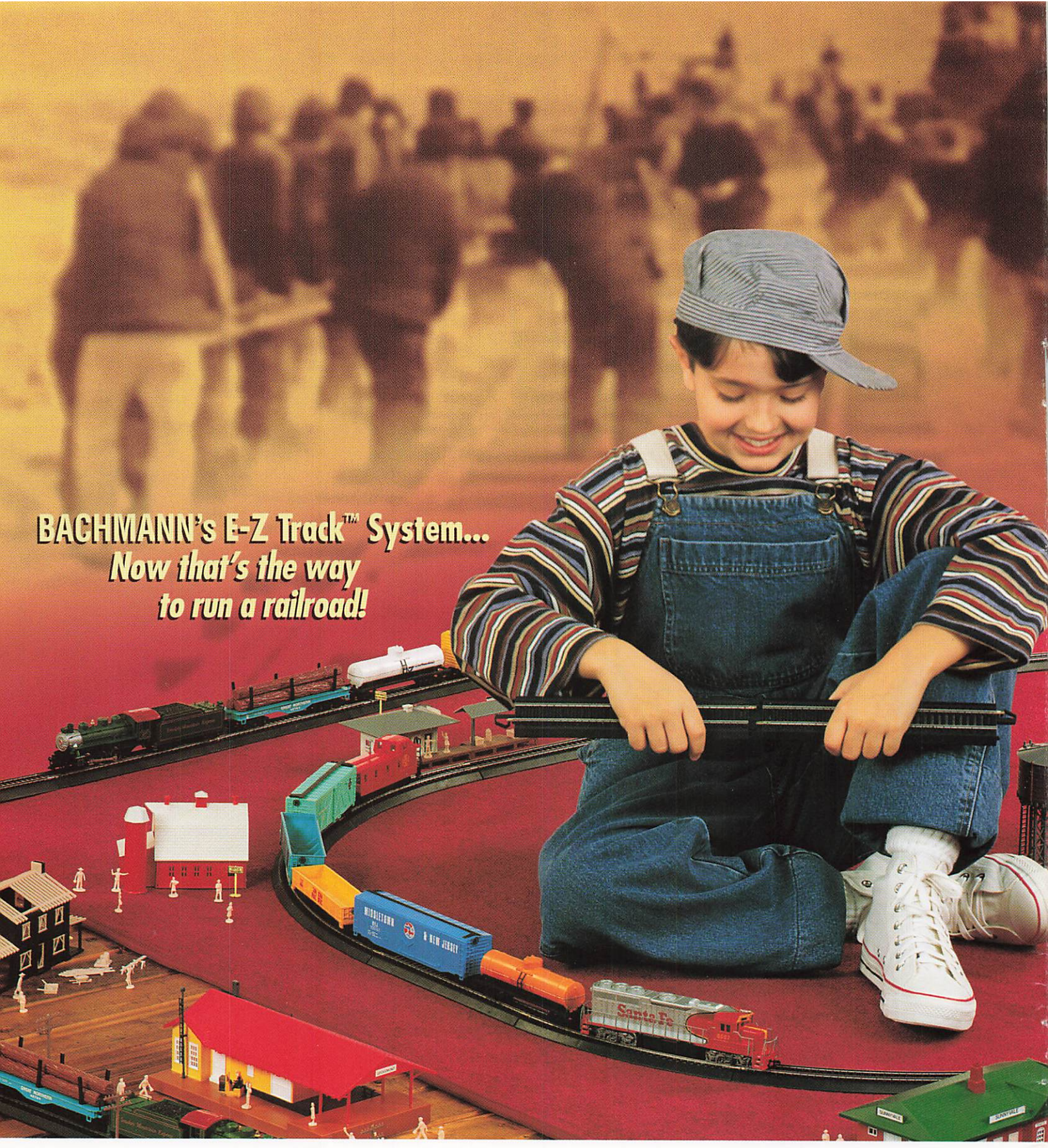
Model Railroading Made "E-Z" with BACHMANN's E-Z TRACK™ SYSTEM

$3.95

By Robert Schleicher





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20 E-Z TRACK™ PLANS

Basic track layouts for minimum spaces and single train operations as well as more complex layouts for two- or three-lap running or for two- or three-train operations featured in this book.

Note-the plans are numbered in order of increasing size and complexity:

LAYOUT	SIZE IN FEET	CHAPTER	PG.	STRAIGHT TRACK: 9"	TERMINAL	3"	BUMPERS	18" RAD. CURVES:	SWITCHES: RH	LH
Oval	3-1/2 x 4	3	10	1	1	0	0	12	0	0
Plan 1	3-1/2 x 4-1/2	5	18	1	1	1	2	18	2	2
Plan 2	3-1/2 x 4-1/2	4	13	1	1	0	0	16	1	1
Plan 3	3-1/2 x 4-1/2	4	13	1	1	0	0	20	2	2
Plan 4	3-1/2 x 4-1/2	9	28	12	1	0	0	20	0	0
Plan 5	4 x 5	4	13	4	1	0	0	16	1	1
Plan 6	4 x 6	4	13	5	1	0	0	20	2	2
Plan 7	4 x 6	8	25	7	2	2	2	32	3	1
Plan 8	4 x 6	8	25	7	1	2	2	31	3	3
Plan 9	4 x 6-1/2	9	29	12	1	5	4	17	1	5
Plan 10	4 x 7	4	14	16	2	4	0	24	0	0
Plan 11	4 x 10	9	30	21	1	3	2	20	2	2
Plan 12	4-1/2 x 7	9	28	9	1	5	1	16	2	1
Plan 13	4-1/2 x 7	9	28	13	1	6	2	19	4	2
Plan 14	4-1/2 x 9	4	15	33	3	7	2	41	2	2
Plan 15	5 x 5	9	27	6	1	0	0	14	1	1
Plan 16	5 x 5	9	29	7	1	4	4	16	1	5
Plan 17	5 x 6-1/2	9	29	21	1	7	8	20	5	5
Plan 18	5 x 7-1/2	4	14	19	1	1	0	22	1	1
Plan 19	5 x 9	4	15	23	1	1	0	30	3	3
Plan 20	6 x 10	4	16	46	1	7	2	44	5	5

Chapter 1

INTRODUCTION

THE BACHMANN *E-Z TRACK™ SYSTEM*

Model railroading has just become more fun and a whole lot easier. With the E-Z Track™ System, the track itself is self-aligning and has inherent strength. Conventional HO scale track was designed to be nailed or glued firmly to a tabletop—-those sheet metal rail joiners were only intended to carry electrical current, not to align the track. With E-Z Track™, the rail joiners carry only electrical current, while the built-in roadbed and ballast provide the strength and self-alignment needed at each track joint. E-Z Track's™ roadbed and ballast also look more realistic because nearly all real railroad track is held in place with ballasted roadbed.

Now, you can operate your trains and know that the track connections won't work loose to cause stalled locomotives, or worse, derailments. You can even assemble the track right on the bare floor or on carpet with little fear of dust or lint working its way up through the ties to cover the track or get caught in the locomotive mechanisms. That's as easy as it gets.

E-Z Track™ makes it much easier to assemble a complete layout than conventional HO track. Any layout made with E-Z Track™ can be operated reliably on the floor as well as on a tabletop. E-Z Track™'s self-aligning feature makes it unnecessary to permanently attach the track to the floor or the tabletop, so you can change the shape of the entire layout, just add track, or modify some of the sidings and resume operation in minutes.

The Magic of Model Railroading

There's magic in the sight of a train speeding along a real railroad line, snaking through curves & diving through tunnels or trees. The pair of glistening rails promises that a train will appear on that track. When a train does loom into sight, the locomotive and its long string of railroad cars follow that pair of shining rails to bring them to life for a few moments. There's a magic in those movements, a magic you can recreate, with ease, in your own room with HO scale locomotives, cars and E-Z Track™.

The real railroads' main purpose, always implied by the huge masses that are the trains themselves, is to move freight, millions of tons of it. The traditional commodities, like grain, coal, lumber, machinery, automobiles, chemicals and oil, are still moved mostly by rail. The railroads are the main arteries that keep America going, they have been for over a century. Railroads are also carrying more and more people, both on Amtrak and on hundreds of commuter lines.

Virtually any locomotive (steam or diesel), any freight car, and any passenger car that has operated on a real railroad during the last century is available as either a ready-to-run model or a kit in HO scale. There is an equally large selection of appropriate buildings, and even scale model people dressed to match both current and historical styles.

You can purchase duplicates of all the equipment of real railroading right down to the last rivet, the proper shade and color of paint and lettering. These products are available at most hobby shops. You'll find them listed in the telephone book's Yellow Pages under the heading "Hobby and Model Supplies—-Retail."

Make the Magic Happen

You can recreate the magic of railroading quickly and easily in HO scale. Today, railroad models are so realistic that it doesn't take much imagination to "see" them as real trains. Where your imagination comes in is believing that these oh-so-realistic trains really are carrying goods or people and that they really are going someplace besides around your layout.

You can stretch your imagination to believe that a simple oval of track is really a portion of a transcontinental mainline and that your trains are moving goods from New York to San Francisco or from New York to New Orleans. Real trains do that, of course. Real trains also move freight much shorter distances between very small towns. Some concentrate all their operations within a single city, transferring freight cars from a large multi-track yard to industries that may be only a few miles or a few hundred yards away. It's a much smaller stretch of your imagination to believe your railroad is a replica of one of these shorter railroads.

The Advanced Layout Plans chapter describes how some relatively simple track plans can be used to recreate the authentic operations of many railroads. You can certainly duplicate the basic movements of real trains, even if the distances and the lengths of your miniature trains are somewhat shorter than reality.

Building A Miniature Railroad the "E-Z" Way

Bachmann's E-Z Track™ makes it possible to combine economical HO scale model railroad equipment with the ease of assembling track that used to be possible only with larger and more expensive model trains. Now you can have reliable and trouble-free operation with your HO scale trains, even on the floor or carpet. Simpler layouts can even be lifted up whole and stored against a wall or beneath a bed.

E-Z Track™ is designed so it can also be mounted on a tabletop, even more quickly than conventional track, because you don't need to install cork or rubber roadbed and glue-down loose ballast. E-Z Track™ is ready-to-use and includes both roadbed and ballast. You can mount E-Z Track™ on a lightweight tabletop and store the entire tabletop against a wall, beneath a bed or provide the tabletop with its own legs.

A Changeable World

The truly portable nature of E-Z Track™ makes it possible for you to build a model railroad that can be changed quickly. E-Z Track™ provides much more reliable operation because the rails are elevated above the dirt, lint and dust of the floor on durable plastic roadbed. The hefty roadbed includes self-aligning snap connections that keep the track sections together and in alignment.

Now, you can build a model railroad in a weekend and, if you decide you want a change, create a completely different model railroad in another evening or afternoon. No longer are you committed to a single track design because you've nailed or glued the track to the tabletop.

Creating a Portable Earth

The HO scale locomotives, rolling stock and structures will seem even more realistic if you finish your model railroad with some scenery, including features like hills, streams, earth, grass, weeds, bushes, trees and roads. The scenery construction techniques shown in Chapter 7 are designed to be as portable as E-Z Track™ itself. If you want to move a hill or a stream or a road or a tree, do it. The system, using felt to simulate the earth and grass (or snow), works as well on the floor as it does on a tabletop. If you do decide to provide a tabletop for the layout, you can still choose to make the scenery portable using either green felt for the basic scenery or painting the tabletop a basic green so you can shuffle the track around anywhere on the tabletop. The track can be held only loosely in place with strips of carpet tape. All of the scenery ideas and all of the layouts shown in the photographs in this book utilize the concept of "portable" scenery.

You can, of course, use E-Z Track™ with traditional scenery methods (including plaster-soaked paper towels for mountains, cast plaster rocks, and the use of casting resin to simulate water and green ground foam rubber and flocking for grass and trees) to make both the track and scenery permanent. The hobby shops that carry model railroad items can provide books and products for conventional scenery as well as many of the products for the "portable" systems described in this book.

Let's Lay Track

This book includes some very special techniques to make it simple to use the E-Z Track™ System most effectively to build a realistic scale model railroad. The track sections snap together, for example, but there is a technique that makes that snap-together assembly easier. It is illustrated in the next chapter. The special plug-in wiring system and suggestions for designing your own layouts are included in other chapters. These tips and techniques will make this "E-Z" system even easier and quicker to use in creating your own realistic model railroad.

Chapter 2

HOW TO USE E-Z TRACK™

E-Z Track™ is designed to be fully interchangeable with most brands of HO scale sectional track. The lengths of the individual track sections, the radii of the curves, the curved portions of the switches and the rail joining areas are nearly identical on most brands of HO scale track and on E-Z track as well.

E-Z Track™, however, provides the invaluable addition of realistic scale ballast to elevate the track above the floor to minimize exposure to dust, dirt and lint. The built-in ballast also provides snap-together assembly with positive interlocking and alignment between the track sections. The positive interlocking means that the ballast provides some real strength and self-aligning at each joint. The sheet metal rail joiners only carry electrical current on E-Z Track™.

Assembling A Layout With E-Z Track™

Each piece of E-Z Track™ will join with any other piece, including curves, straights, switches and end-of-track bumpers. The pieces merely snap together. You must use some care when snapping the two pieces of track together because it is possible to snap the ballast together with the rail joiners slightly out of place.

When you assemble two pieces of E-Z Track™, then, pay attention to the strip metal rail joiners (there's one on each opposite rail). Push the two pieces of track just close enough so one of the rail joiners touches the adjoining rail, Twist the track slightly so that rail joiner starts onto the rail. Then, twist the track the other way so the second rail joiner starts onto the second rail. With both rail joiners started, you can push the track together quickly. There's no need, of course, to worry about alignment when snapping the sections apart.

Maintaining E-Z Track™

The rail joiners can work loose with repeated use when assembling and disassembling layouts. If the rail joiners are loose, the electrical current may not pass across that joint and erratic locomotive performance can result. To tighten the rail joiners, start with the track pieces joined together. Use a pair of needle nose pliers to squeeze the sides of the rail joiner at the base or horizontal flange of the rail. Then, reposition the needle nose pliers so they grip the sides of the rail and use the tips of the pliers to push down on the top edges of the rail joiners to push the edges down firmly against the base of the rail.

Dust, grease, oil and corrosion can accumulate, over time, on the rails. Use a lint-free rag, dampened with plain water, to clean any dust or dirt from the track. Model railroad shops sell special hard rubber erasers that are designed to clean the metal without scratching the surface. Just rub the eraser over every inch of the tops of the rails, including the switches. It's a good idea, too, to clean the wheels of the locomotives and cars whenever residue is visible. Never use steel wool anywhere on a model railroad because the strands can work their way into the motors of the locomotives to get stuck on the motor magnets and eventually cause a short circuit that can ruin the motor. Sandpaper, emery paper or abrasive kitchen cleaning pads can scratch the rails and corrosion will occur even more quickly in the scratches.

Permanent Joints for Portable Layouts

The E-Z Track™ joints are designed to keep the track in alignment but the track still needs support from a table or floor. The joints are quite strong and will resist bending from side-to-side. The joints also resist bending down. The joints are weakest and most likely to be damaged when the track is bent upward from the joint. That can happen any time you try to pick up an assembled E-Z Track™ layout, rather than just sliding it along the floor.

Air conditioner duct tape (usually called simply "Duct" tape—"Duck" tape is one brand) can be used to reinforce E-Z Track™ joints for a semi-permanent layout. The black tape is the least noticeable but gray works just as well. The duct tape can be applied to the track after it assembled. Two of the photographs show the tape being applied to the bottom side of the track—that is just to illustrate how to apply the duct tape—you do not need to turn the track upside down to apply the duct tape. The tape can be applied from the bottom of the track with the tape's sticky side up, and the track right side up. The tape can be removed when you want to disassemble the layout or simply modify or expand it.

We recommend that you only move E-Z Track™ layouts by sliding them along the floor so there is less chance of damage to the joints. If, however, you want to pick up one of the smaller E-Z Track™ layouts to store it

against a wall or even to hang it on nails on a wall, the track joints must be reinforced with duct tape. If you do decide to pick up an assembled layout, all of the stub-ended sidings should be removed. Move and store the sidings as separate pieces. If the layout has an inner and outer oval, the ovals must be disconnected so only one oval at a time (minus any sidings) is moved. Do not try, however, to pick up an assembled layout larger than about 5 x 5 feet even with the joints reinforced with duct tape.

If the rail joiners bend when the layout is moved, they can usually be straightened and tightened with needle nose pliers. Replacement rail joiners are available at most model railroad shops if the existing rail joiners are bent beyond repair. If you break the plastic aligning tabs on the track, that track section must be replaced. (Broken track sections can sometimes be used at the ends of stub-ended sidings.) If you move the pieces gently, and in sizes no larger than about 5 x 5 feet, you should be able to store an E-Z Track™ layout against a wall, providing you have reinforced each track joint with duct tape. You can assemble E-Z Track™ by holding both pieces in your hands or by placing both pieces on the floor or tabletop and pushing them together.

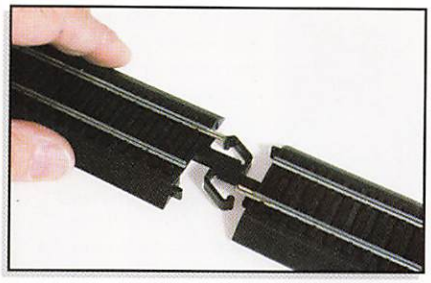
IMPROPER ASSEMBLY:

If you just push the pieces together, there is chance that either or both of the rail joiners will slide under the rail, as shown here, rather than around the base of the rail. To avoid this, watch the rail joiners, as you assemble the track.

PROPER ASSEMBLY:

The rail joiners on both rails are gripping the bases of each rail. The rail joiners are also parallel to the rails, with no visible evidence of bending.

When the ends of the track are almost touching, twist the track enough to get one joint started, then twist it to get the other started. When both rail joiners are started on their rails, push the ends of the track firmly together. Both the ballast and the ends of the rail should just touch when the tracks are assembled properly.



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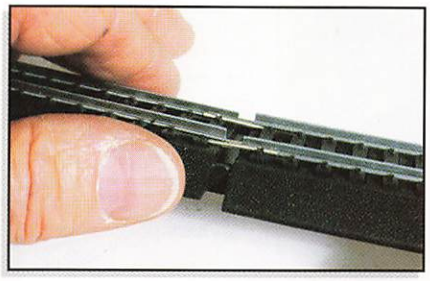

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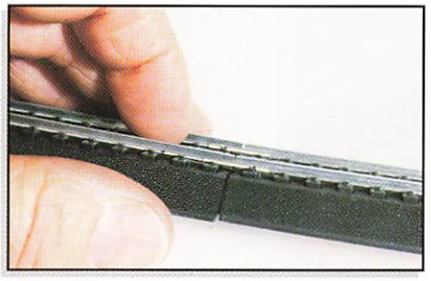

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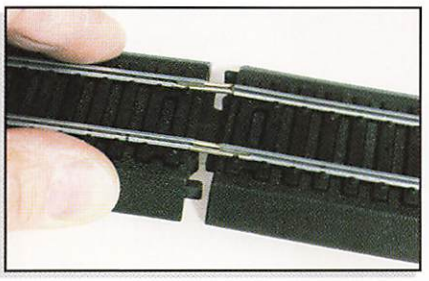
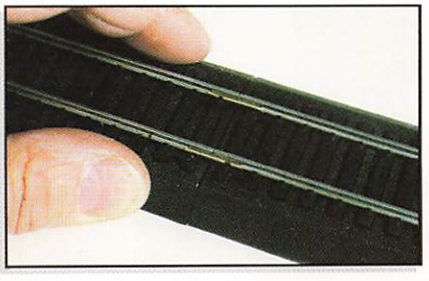
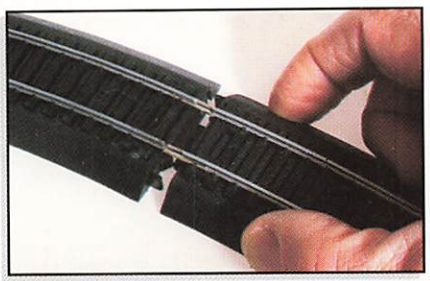


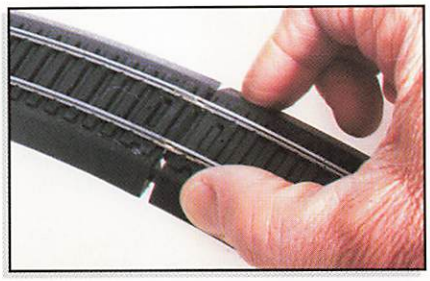
When the ends of the track are almost touching, twist the track enough to get one joint started, then twist it to get the other started.



When both rail joiners are started on their rails, push the ends of the track firmly together. Both the ballast and the ends of the rail should just touch when the tracks are assembled properly.

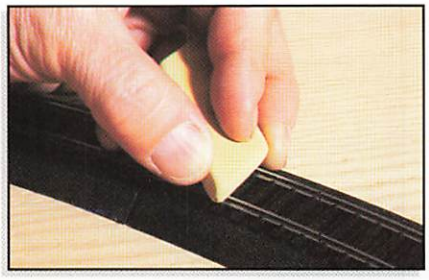


When assembling a curved track (or the curved side of a switch) to any other piece of track, start the assembly by aligning the outer rail. You may even need to hold the rail itself, near the rail joiner, to get the rail and rail joiner to align so the rail joiner will start to slip over the rail.

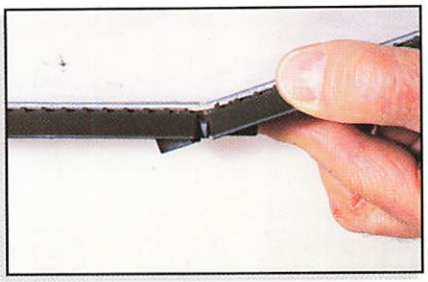


Finish assembling a curve track to any other track by aligning the inner rail and rail joint and getting that rail joiner started. The two track sections can now be pushed tightly together as shown in previous photos.

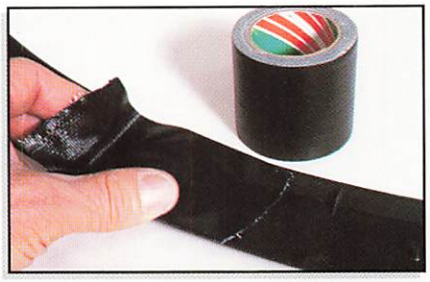
TIGHT RAIL JOINTS: If E-Z Track™ has been twisted, especially when picking up assembled sections, the rail joiners can be bent and become loose. To tighten them, press the joiners against the sides of the rail with needle nose pliers. Use the pliers to force the top edges of the joiners tightly against the tops of the right and left flanges of the rail, too.



TRACK CLEANING: Wipe away any accumulated dirt with a damp, lint free rag. Buy one of the special track cleaning erasers at a hobby store that carries model railroad supplies. Simply rub the eraser over the tops of the rails to remove any dirt or residue.

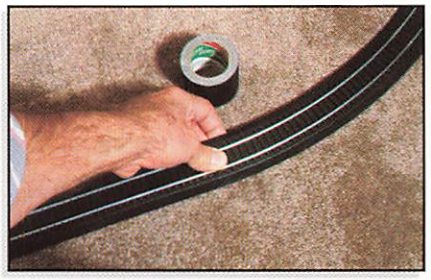


REINFORCING TRACK JOINTS: E-Z Track™ should not be twisted in the direction shown, with the ends of the track pulled upward from the joint. Avoid moving the track in any way that could cause this type of bending.

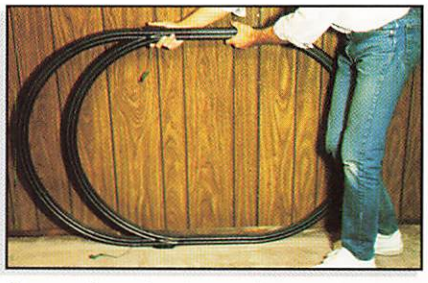


To reinforce the track joints to minimize the chance of bending, cover the bottom of each joint with a three or four-inch piece of two-inch wide air conditioner duct tape. You do not need to turn the track upside down after you've learned the feel of how and where the duct tape should fit.

Push the duct tape firmly into the cavities of the bottom of the track so at least part of the tape holds firmly against the areas immediately beneath the ties as shown.



The duct tape can be applied, as shown in the two previous photographs, while the track is still right side up.



To store the track against a wall, remove any stub-ended sidings or additional ovals. Lift the track gently, with both hands positioned so the weight of the track is distributed evenly. Gently lean it against the wall or hang it from nails or hooks positioned about where your hands held the track.

Chapter 3

WIRING & SWITCHES

The wiring system for the E-Z Track™ system is as simple as it can possibly be. A two-wire cable provides power to the track and a second two-wire cable provides power for the switches. Those cables plug into the terminal rerailer or the Switch Control Boxes that provide push button remote control for the switches. That's all there is to it.

Attaching the Wires

To connect the track to the power pack, plug the two-wire cable (furnished with the power packs in E-Z Track™ train sets, or available on special order from Bachmann) into the terminal track section to provide power for the locomotive. Attach the ends of those two wires with metal spades to the two screws on the power pack marked "DC" or "Track."

If you want to add remote controlled switches (or turnouts), attach the two metal spade ends of another two-wire cable (supplied with the switches) to the two screws marked "AC" or "Accessories" on the power pack. Connect the plug end of that two-wire cable to the Switch Control Box to operate a single switch. As you add switches, each Switch Control Box is simply plugged into an adjacent Switch Control Box. The three wire cables that lead from individual switches also have three-prong plugs that connect to the specific Switch Control Box for that switch.

Operating the Power Pack

The power pack controls the amount of electrical power that will reach the locomotive. The power pack also automatically reduces household 115 volts of AC current to 12 volts of DC current to operate the trains (and to 15 volts of AC current to operate accessories like switches, street lights, interior building lights and horns). A single knob on the power pack serves as a speed control for both forward and reverse operation. The knob has a pivoted lever that can be flipped over to provide more leverage, easier operation and more effective control.

When the knob is in the center position, the power is off. Turn the knob left, slowly, and more current is gradually fed to the rails to increase the speed of the train. Turn the knob further and the train will run faster. One end of the knob is shaped like an arrow and there are typical HO scale miles-per-hour speeds marked on the face of the power pack to give a rough idea of how fast the throttle (or speed control) is set. Moving the knob to the left (from the center "off" position) makes the train go in one direction, moving the knob to the right (from the center "off" position) makes the train move in the opposite direction.

Some of the larger power packs, that are available through hobby dealers, have separate slide switches to turn the power on and off and to provide forward and reverse control. With the power pack supplied with E-Z Track™ train sets, the single knob serves both those functions as well as providing speed control. The two spade end terminals on the E-Z Track™ two-wire connecting cord can, of course, be attached to any model railroad power pack that provides 12 volts of DC current. These power packs are usually suitable for use with E-Z Track™.

Operating Two or More Trains

Each train must have its own power pack with the simplified wiring system shown in this book. It is possible to run two locomotives, at the front of a single train, with one power pack. I would suggest, however, that you use two identical locomotives, both from the same manufacturer, so their speed is about evenly matched. If one locomotive runs the wrong way, lift either locomotive off the track, turn it 180-degrees and replace it on the track.

If you want to run two separate trains, it is wise to make a second separate track route, perhaps outside the basic oval, for the second train. There are several track plans, in chapters 5 and 9, that have separate ovals for two and even three trains. Do not connect these inner and outer ovals with switches or short circuits are sure to result. It is possible to avoid those short circuits, using insulated plastic rail joiners and on-off switches to control the power to the track. That, however, requires more complex wiring than you'll find in this book. Your hobby dealer can suggest several books on wiring for two-train operations that can be used with E-Z Track™.

Operating the Remote Control Switches

The operation of the Switch Control is a two-step procedure. First, slide the switch button to the opposite side of its slot. That prepares the switch for operation. To activate the switch, push the slide button down firmly for just a second and release it immediately. The moving parts of the track switch (called the "points") should move to throw the switch so trains will take the alternate route.

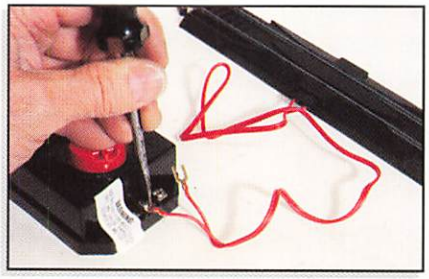
If you want the slide switch to move in the opposite direction to control the switch points, simply unplug the three-wire cable, turn the plug over and plug it back into the Switch Control Box.

Smooth Wire Connections

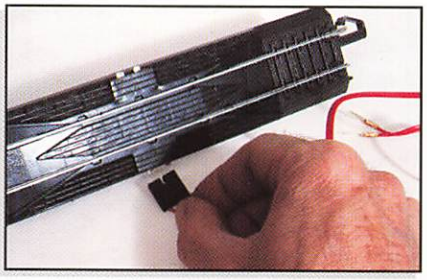
The two and three-wire cables are shipped with the cables tied into neat little bundles. If you only need to run the cable an inch or so, leave the bundle as is. If you need more than a few inches of cable, however, completely loosen the cable from the bundle. Sometimes, that means that part of the cable must be pushed and maneuvered so there is a lot of slack. When the cable is completely free, hold it firmly between the fingers and thumb of one hand while you pull it with the fingers of the other hand. That pressure should be enough to remove any kinks from the wire. Work slowly so you don't accidentally bend any of the kinks even tighter.

The straightened two- or three-wire cable can then be re-attached as described earlier. If there is excess cable, tuck it beneath the track or tie the excess length into a series of loops (like those original loops) with a piece of twist-wrap wire like that supplied with plastic food bags. If the cables are not long enough, you can splice-in any additional length of two-wire cable. Buy two-wire cable, with 20 or 22 gauge stranded copper wires, at a model railroad hobby store or electronic supply store (like Radio Shack). Cut the E-Z Track™ cable about an inch from one of the plugs. Strip the insulation back about 1/4-inch from each pair of wires. Cut the new wire to the needed length and strip about 1/4-inch of the insulation from each of those pairs of wires. Twist the ends of one pair of wires together and wrap black plastic electrical tape around the joint. Repeat the process with all of the remaining wires.

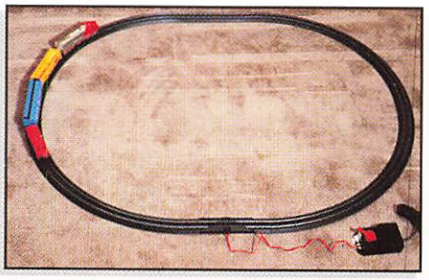
The wires can be routed across the tabletop or over the floor. If you have built a tabletop for your layout, the wires can be routed beneath the tabletop. Simply drill a 1/4-inch hole through the tabletop near the wire connections to the terminal rerailer track or turnouts. Drill another hole near the power pack or Switch Control Box. Push the wires through the holes and run them beneath the tabletop. (I would suggest you save this step until you have operated the layout for several months so you are reasonably sure you want the track and switches to remain in the same positions. Otherwise, you could end up with a layout board that has so many holes from previous wire locations that it looks like Swiss cheese. Frankly, it's easier to just tuck the excess wires beneath the E-Z Track™ roadbed.)



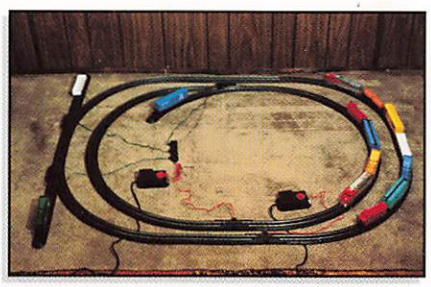
CONNECTING WIRES TO THE TRACK: ***Attach the spade ends of the two-wire cable to the two screws on the power pack marked "DC" or "Trains".***



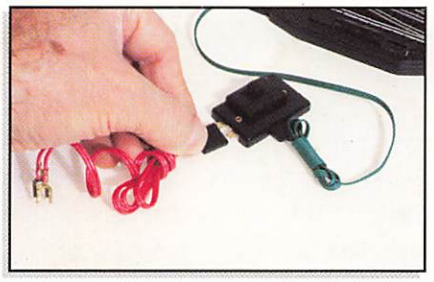
Plug the opposite end of the two-wire cable into one of the sockets on either side of the 9-inch straight Terminal Rerailer Track.



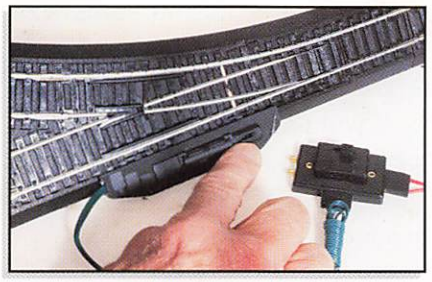
The basic oval layout with the power pack connected properly and one train ready for operation.



Two trains require two separate ovals for operation. Connect a separate power pack to each oval. The wires for remote control of the switches, however, can be routed to either power pack.

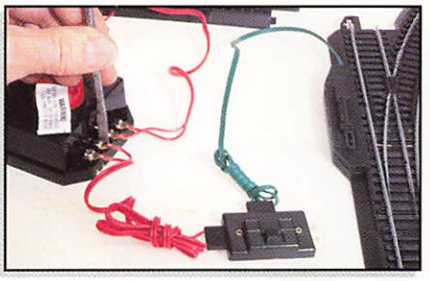


Plug the two-wire cable into the socket on the side of the Switch Control Box.

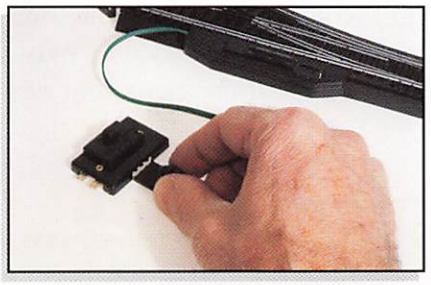


CONNECTING WIRES TO SWITCHES:

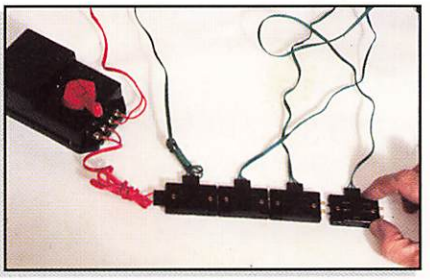
The switches can be operated manually by simply sliding the tiny black pin on the side of the switch back and forth. The switches are usually operated by remote control using this Switch Control Box, connected to a power pack.



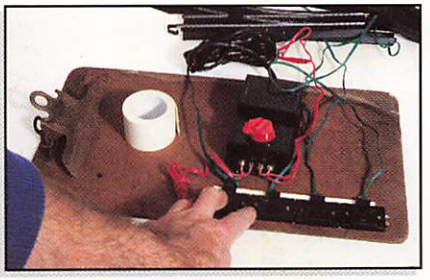
Connect the spade ends of the two-wire cable for the Switch Control Box to the two screws on the power pack marked "AC" or "Accessories".



To connect the switch, first plug the three-wire cable into the Switch Control Box.



Additional Switch Control Boxes can simply be plugged into the side of the first Switch Control Box. Only one two-wire cable needs to be connected to the power pack to operate several pairs of switches.



You can make a simple Control Panel to organize the electrical controls. Use a clipboard or just a scrap of hardboard or plywood. Hold the power pack and the Switch Control Boxes to the clipboard with double-sided carpet tape, installed as shown in Chapter 6.

Chapter 4

BASIC TRACK PLANS

Each section of E-Z Track™ joins firmly with any other section of E-Z Track™. The size and shape of the sections have been designed to create layouts that are completely self-aligning. No bending or cutting is necessary if you follow the basic geometry of the E-Z Track™ design.

Changing The Size of Track Plans

This chapter includes layout plans that utilize the basic geometry common to nearly all brands of HO scale sectional track, including E-Z Track™. Any of these layouts can be expanded by simply adding one or more pairs of straight track sections on directly opposite sides of the layout. Some of these plans can be reduced in size by removing pairs of straight track sections from opposite sides of the layout. Project Layout 2 in Chapter 5 was created by removing two pairs of straight track from each long straight in PLAN 19 to reduce its size from 5 x 7-1/2 feet to 5 x 6 feet.

You can also insert a switch in place of any straight track section. This was done with the project layout in Chapter 5, where two stub-end sidings were added to the inner oval.

The track plans are numbered in order of increasing size. A complete index of track plans appears on the contents page.

Installing Switches On Curves

The curved side of the E-Z Track™ switch, like that of most other brands of HO scale sectional track, is about 1-1/2 inches longer than the straight side. The extra length is needed to provide some transition from the curved to the straight route through the switch. If, then, you want to install an E-Z Track™ switch in place of a curved track section, you MUST also replace another curved track section, on the direct opposite side of the layout, with an E-Z Track™ switch.

Alternatively, you can replace TWO adjacent curve track sections with two switches, but a three-inch long straight track must be inserted between two curves on the opposite side of the layout. You can see examples of this in track PLANS 14, 18, 19 and 20.

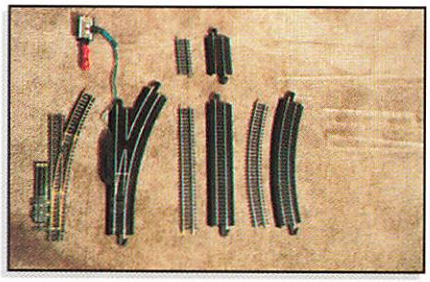
E-Z Track™ With Conventional Track

E-Z Track™ has been designed to duplicate the existing sizes and dimensions of all the popular brands of HO scale sectional track. That means that you can substitute sections of E-Z Track™ for the same-size sections of other brands.

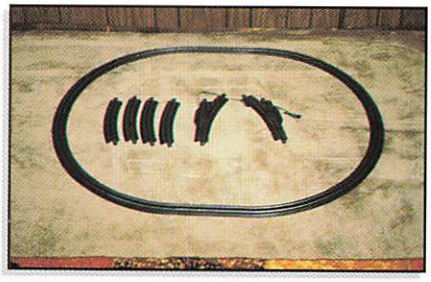
You can, of course, use sections of other brands of track with E-Z Track™. If you use conventional track in conjunction with E-Z Track™, then all the track should be mounted firmly on a table just as it would with a layout assembled entirely from conventional track.

E-Z Track™ For Other Track Plans

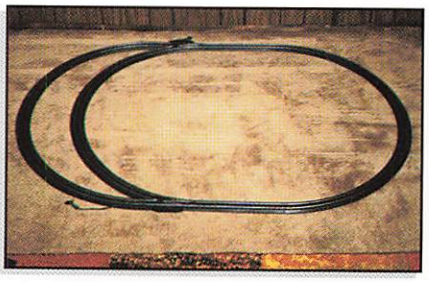
The interchangability of E-Z Track™ means that you can use E-Z Track™ to recreate any of the published track plans for other brands of sectional track. You must, though, select plans that utilize track sizes that are currently available with the E-Z Track™ system.



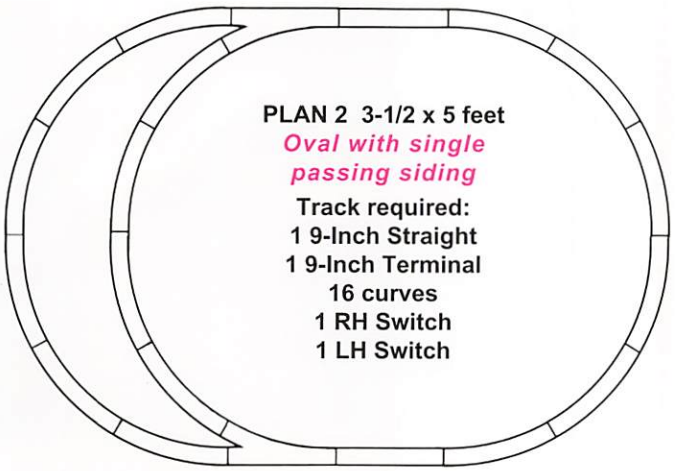
Each piece of E-Z Track™ is designed to be completely interchangeable with conventional track. Some conventional track pieces are shown to the left of E-Z Track™ replacement sections (left to right): switch, three-inch and nine-inch straights and 1/3-circle 18-inch radius (30-degree) curve.



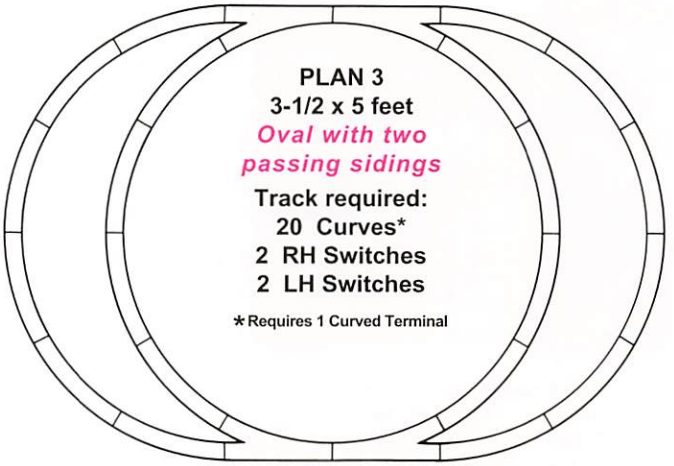
To add a passing siding to a basic oval, use four curves and a right and left switch.



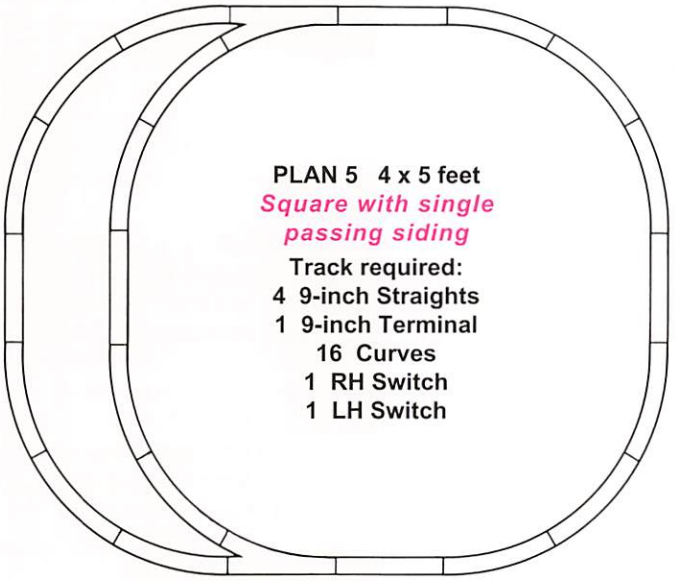
The switches must be installed on opposite sides of the layout to maintain the geometry of the system and to be sure every track joint aligns properly and fits snugly. This is the layout shown in PLAN 2.



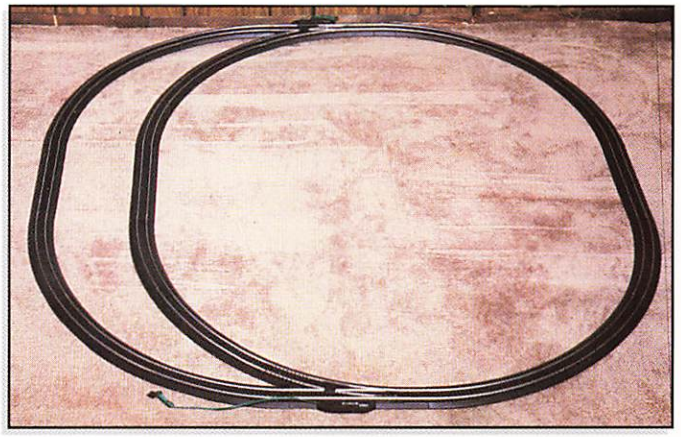
PLAN 2 3-1/2 x 5 feet
Oval with single passing siding
Track required:
1 9-Inch Straight
1 9-Inch Terminal
16 curves
1 RH Switch
1 LH Switch



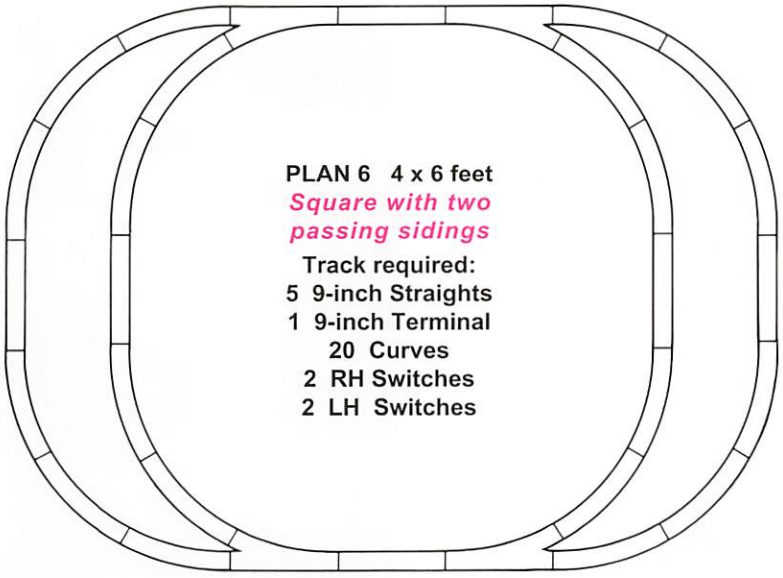
PLAN 3
3-1/2 x 5 feet
Oval with two passing sidings
Track required:
20 Curves*
2 RH Switches
2 LH Switches
* Requires 1 Curved Terminal



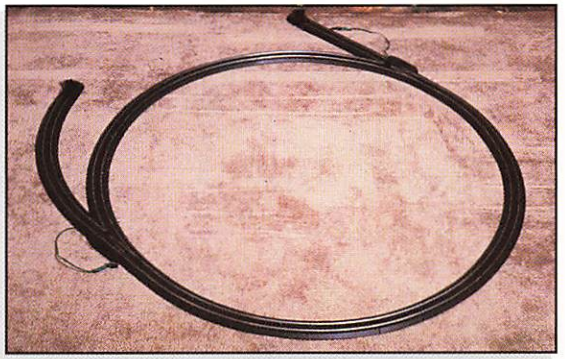
PLAN 5 4 x 5 feet
Square with single passing siding
Track required:
4 9-inch Straights
1 9-inch Terminal
16 Curves
1 RH Switch
1 LH Switch



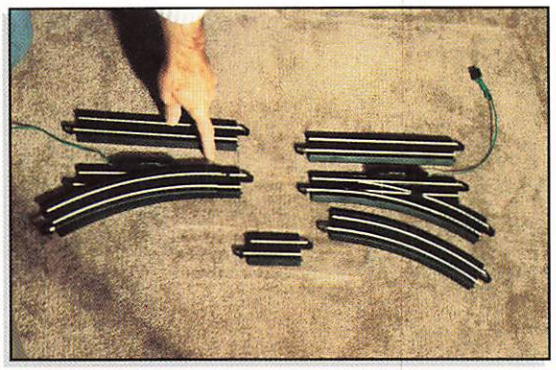
This is how PLAN 5 looks when assembled with E-Z Track™.



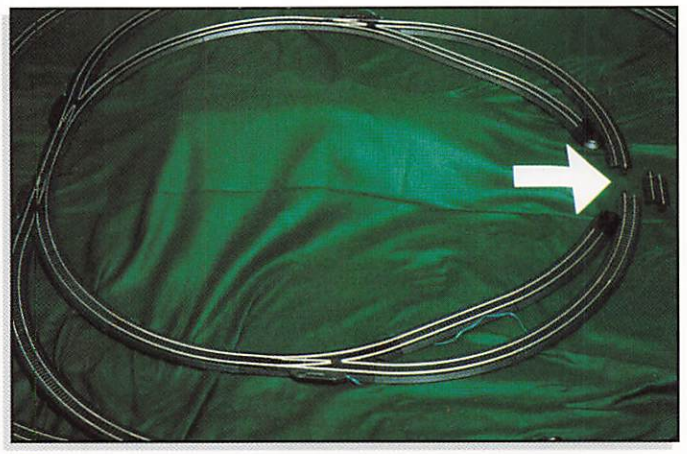
PLAN 6 4 x 6 feet
Square with two passing sidings
Track required:
5 9-inch Straights
1 9-inch Terminal
20 Curves
2 RH Switches
2 LH Switches



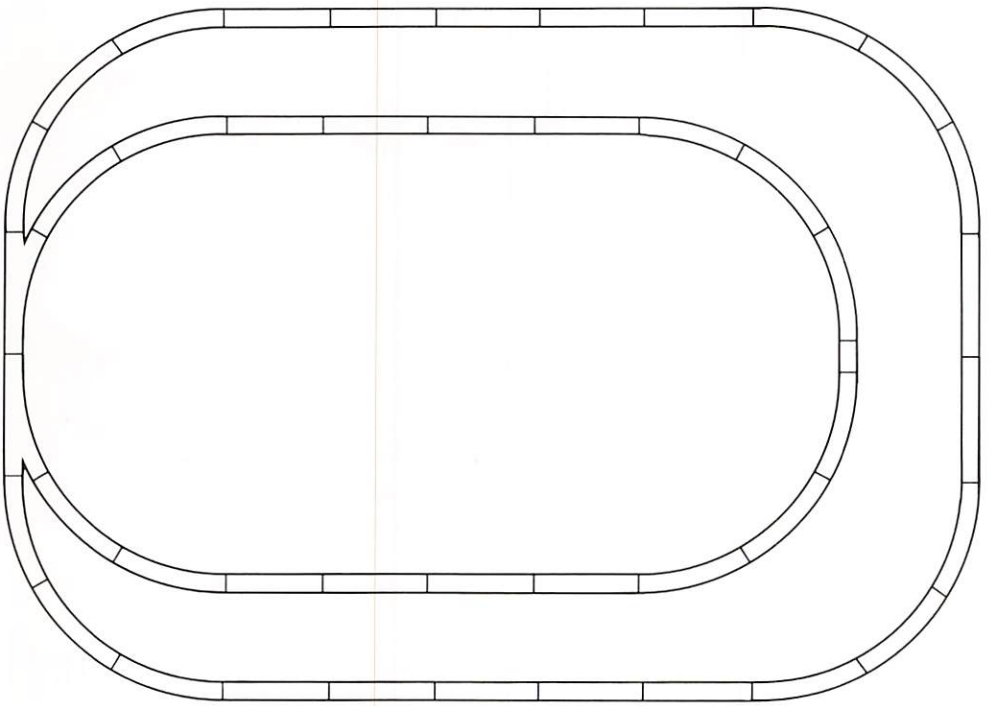
You can add two switches to a circle, but only if you place them on opposite sides of the circle as shown. If just one switch is used, several of the track joints will not align properly.



Each switch replaces both a 9-inch straight and a standard 18-inch radius curved track, PLUS there is an extra 1 1/2-inches of straight that is added to the length of the curved route of the switch. If you replace two curves with two switches, you must add a 3-inch straight on the opposite side of the circle to compensate for the switches. PLANS 18 and 19 have clear examples of this. You can, however, replace a 9-inch straight track with a switch and not upset any alignment.



This is a modified version of PLAN 19 that is used for Project Layout 2 in Chapter 5. The arrow indicates where the 3-inch straight must be used to compensate for the pair of switches on the opposite (and curved) end of the oval.



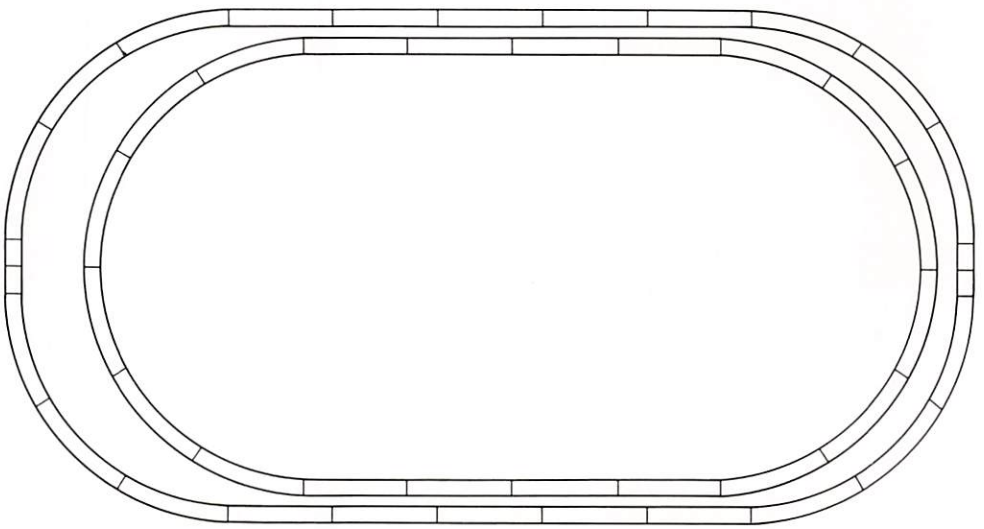
PLAN 18 5 x 7-1/2 feet

Two-lap Mainline

(Note: a 3-inch straight is needed opposite the pair of switches to maintain geometry and track alignment.)

Track required:

19 9-inch Straights
1 9-inch Terminal
1 3-inch Straight
22 Curves
1 RH Switch
1 LH Switch



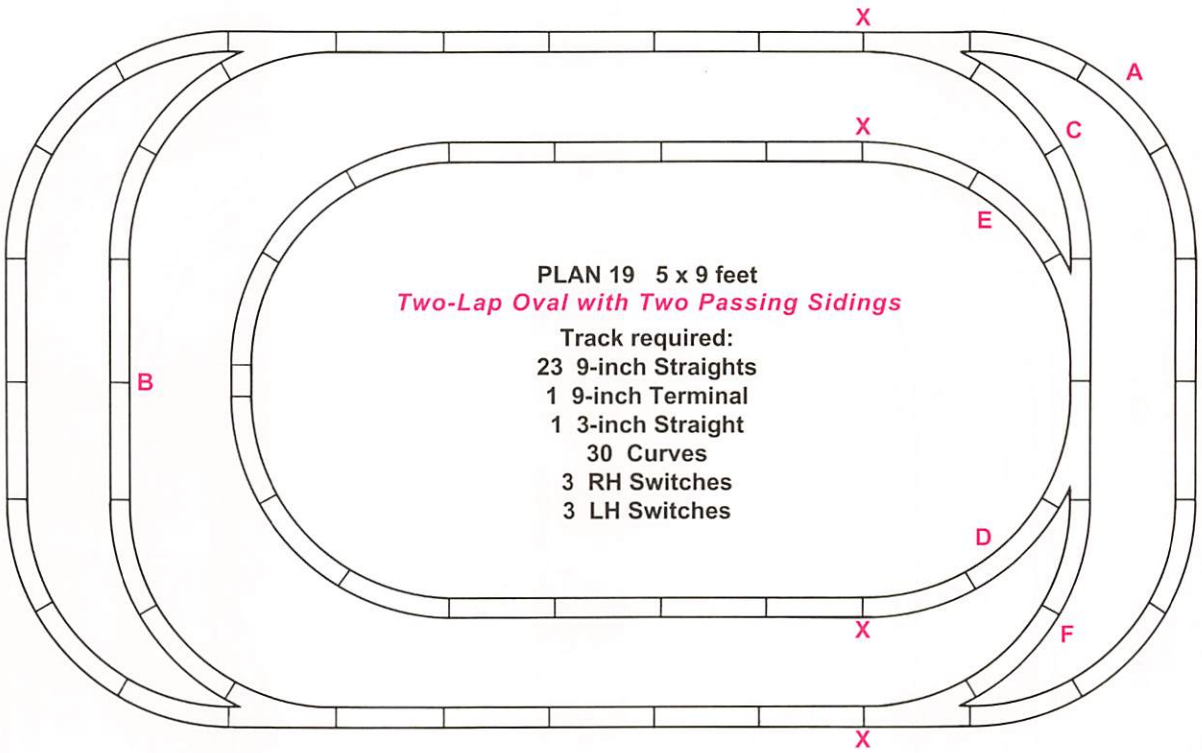
PLAN 10 4 x 7 feet

Two-Train Double Oval

(The two-lap version of this for just one train is PLAN 19.)

Track required:

16 9-inch Straights
2 9-inch Terminals
4 3-inch Straights
24 Curves

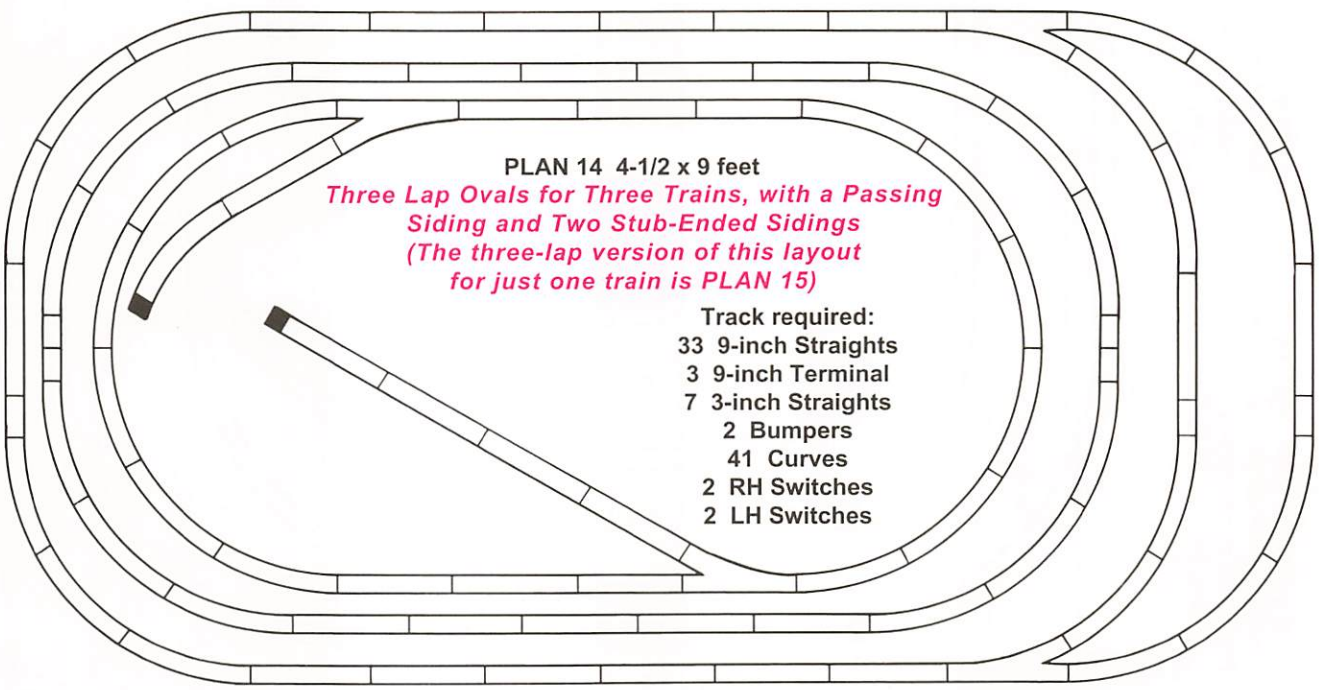


PLAN 19 5 x 9 feet

Two-Lap Oval with Two Passing Sidings

Track required:
23 9-inch Straights
1 9-inch Terminal
1 3-inch Straight
30 Curves
3 RH Switches
3 LH Switches

Note: This is the plan used for Project Layout 2 in Chapter 5, but with two straight tracks removed at the points marked "X". A train can run around this layout starting at A and travel CLOCKWISE, around the outer oval through B, to switch into the inner oval at C. It would continue around the inner oval, past D to E, and switch back to the outer oval at F. The train could then repeat that path indefinitely, but passing each lettered town only once a lap. If a point-to-point run was desired (as described in Chapter 9), the two major "cities" would be at A and F. PLAN 10 is a version of a two-lap layout for two trains.

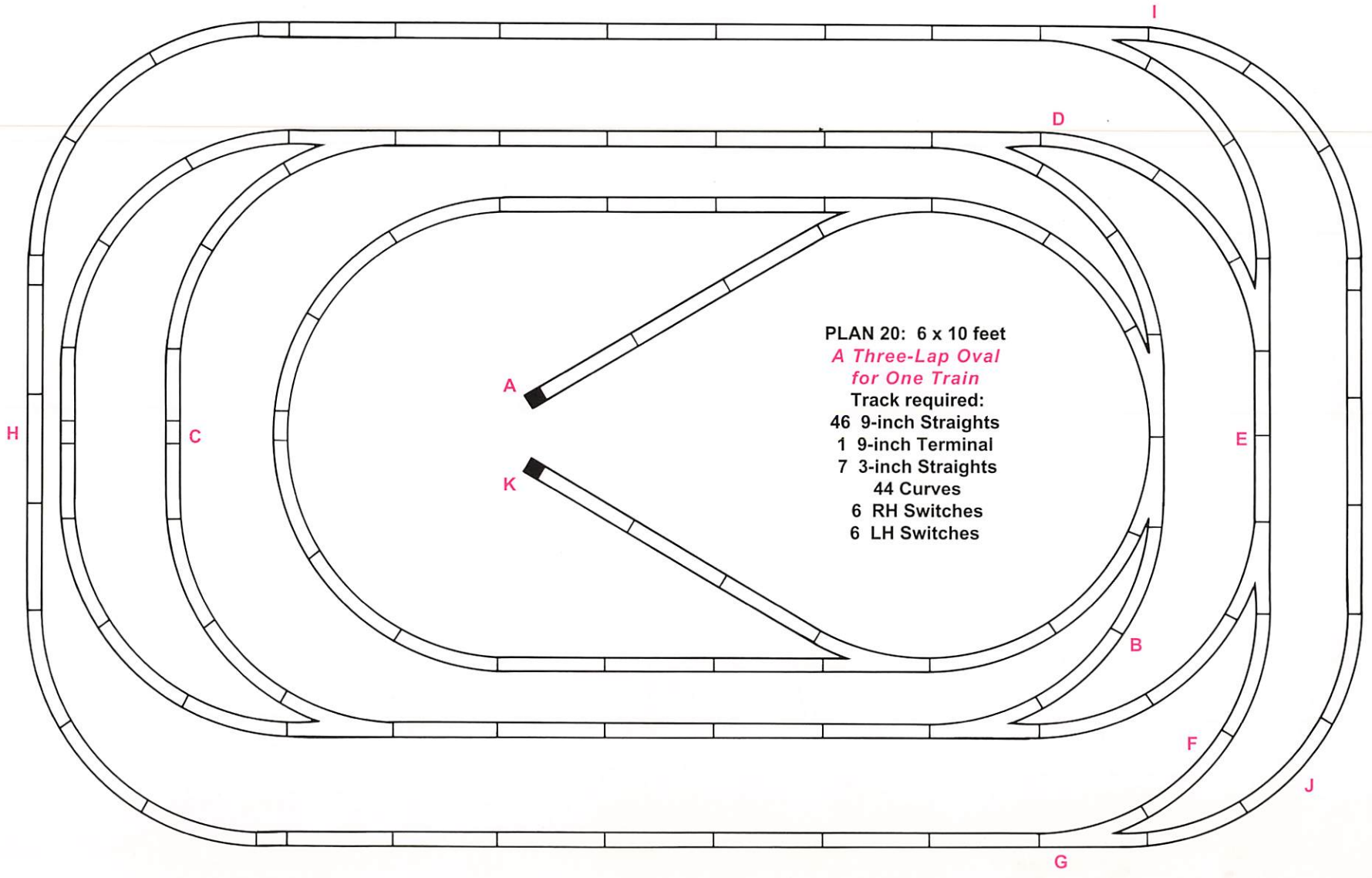


PLAN 14 4-1/2 x 9 feet

Three Lap Ovals for Three Trains, with a Passing Siding and Two Stub-Ended Sidings
(The three-lap version of this layout for just one train is PLAN 15)

Track required:
33 9-inch Straights
3 9-inch Terminal
7 3-inch Straights
2 Bumpers
41 Curves
2 RH Switches
2 LH Switches

The train can start around this layout at the stub-ended siding A and run clockwise to switch to the middle oval at B. The train would continue clockwise through C to switch to the outer oval at D and travel through F and G around the outer oval to H, I and, finally, J. The train could repeat the path, moving inward back down through G, H, and into the middle oval at I, past C and into the inner oval, to end its run at K. For a point to point run, the train would stop at K. PLAN 14 is the three train, three lap version of this layout.



PLAN 20: 6 x 10 feet

A Three-Lap Oval for One Train

Track required:

46 9-inch Straights
1 9-inch Terminal
7 3-inch Straights
44 Curves
6 RH Switches
6 LH Switches

Chapter 5

LAYOUTS & SCENERY ON THE FLOOR

Scenery For Floor Layouts

The surfaces of bare floors or carpets just do not look anything like scale model scenery. You can improve the realism, however, by simply placing a large piece of white felt (to simulate winter) or green felt (to simulate summer) on the floor before you lay the tracks. Felt is available at stores that sell fabric intended for dresses, shirts and other clothes. Buy a piece large enough for the layout you wish to build. The white felt in the photos is about four-feet wide and I asked for two yards, to obtain a 4 x 6-foot piece. The green felt is about 5 feet wide and I asked for 2 1/2 yards, to get a 5 x 7 1/2-foot piece.

Project Layout #1, Winter in 3-1/2 x 4-1/2 Feet

This particular layout is a natural expansion of the simple oval. The first expansion adds a passing or "through" siding on one end. The plan for this layout is Plan 2 in Chapter 4. The plan provides the operator a choice of two routes for the train, one around the outer oval or, by throwing both switches to the curved routes, a shortcut through the shorter route. It would be ideal for use around a Christmas tree.

Switch back Switching Operations

The layout can be further expanded with a right and a left switch, two more curved track sections, a nine-inch straight, a three-inch straight and two bumpers. The track sections are added to make a pair of connected sidings that form a switchback as shown in Plan 1. This siding has been added to make operations more interesting. It is designed to be just long enough so a single locomotive can pull a single 50-foot car into the siding from right to left. The locomotive then reverses direction to drop off the car at the freight house.

The layout is built on white felt and no trees or bushes are installed so the scene has the stark look of winter. A road, however, was added as described in Chapter 7. The buildings are all from the easy-to-assemble Bachmann Plasticville, USA® series.

Making Mountains From Felt

Green felt has both the texture and color of scale model grass. For a model railroader, it also has the advantage of having no loose particles (like sawdust or real dirt) that can work their way into the locomotives. That cleanliness also makes it useful for use on the floor. Pick up the felt, and there's little mess left behind. You can even add the rivers and roads shown in Chapter 7. To make the layout look even more realistic, add some hills and mountains.

To build a mountain, simply wad-up some newspapers. Put the newspaper in the center of the area to be covered with the felt. Drape the felt over the newspaper. If you want the mountain to be higher, simply lift up the felt and add more wadded-up newspaper. If you want the mountain lower, just push down on the newspapers that are already under the felt. Spread the felt so there are as few folds around the edges as possible. You can move the mountain by simply moving the newspapers by pushing against them through the felt. Push lightly along the base of the "mountain" while pulling up on the felt near the center of the mountain.

You can also add some loose lichen moss and ready-made trees. The lichen moss, trees and other scenery items are available from the hobby shops that carry model railroad supplies. There are some close-up photos of how realistic these trees and lichen moss bushes can be in Chapter 7.

Project Layout #2, A Two-Lap 5 x 6-Foot Floor Layout

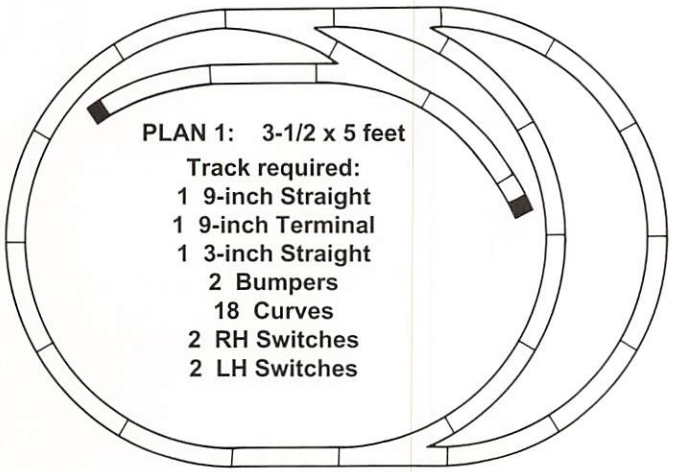
This layout is yet another development of the simple oval into a two-lap mainline like Plan 18 in Chapter 4. That plan, however, was designed for a 5 x 7 1/2-foot area. Two pairs of straight track sections were removed from both sides to reduce the length to just 6 feet. Another pair of straight track sections were replaced with switches to make two stub-ended industrial sidings.

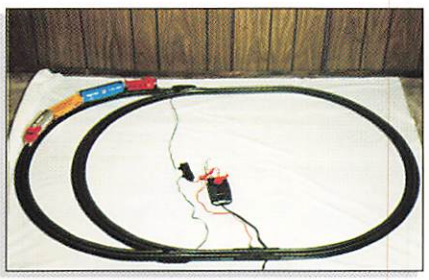
The mountain serves as a scenic view block, so you can really only focus on one side of the layout at a time. The foreword edge of the mountain is covered with roads and buildings to make a busy little town. A freight station and a small passenger platform are placed on the back side of the mountain to simulate another very small town.

Real Railroad Operations

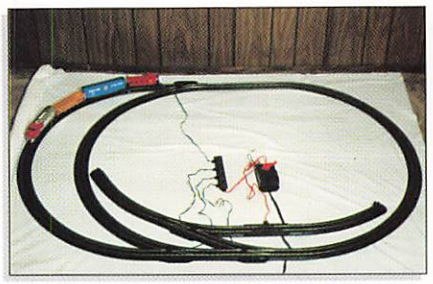
You can simulate real railroad operations on this layout by placing a box car on the siding at the freight house in the smaller town, leaving it long enough to be loaded, then picking it up to deliver it to the industrial siding in the larger town.

The train with the box car, however, can make several laps around the layout, first on the inner oval then on the outer oval, to simulate a trip across the state. There's room enough to add two stub-ended industrial sidings like these to most of the layouts in this book, so you can duplicate these operations on layouts built to match other plans.

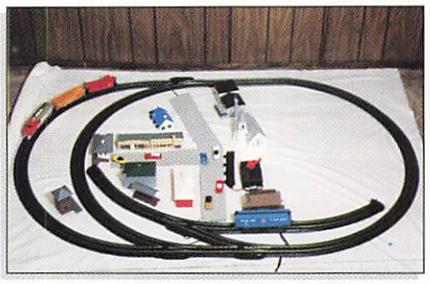




PROJECT LAYOUT 1:
Cover the floor with white felt to simulate snow-covered scenery. The layout is a basic oval with a pair of remote control switches and two extra curves.

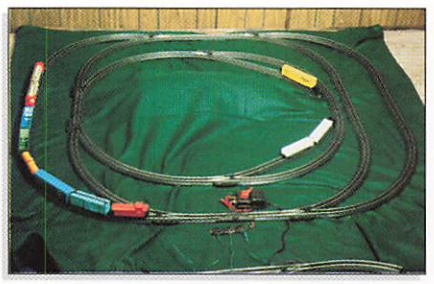


Another pair of switches, two curves and two bumpers are needed to add this switchback-style siding.



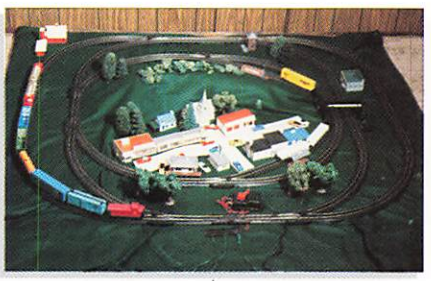
The roads are cut from sheets of foam rubber sold by craft stores and described in Chapter 7. The buildings are from the Bachmann Plasticville, USA® series.

Use wadded-up newspapers to form the shapes of mountains that will be covered by felt.



PROJECT LAYOUT 2:
Drape the green felt over the wadded-up newspapers. Lay the track and, if necessary, move the mountain by moving the wadded-up newspapers to leave room for stub-end sidings and buildings.

Plasticville, USA® buildings and sheet foam streets add life to the layout.



The mountains and grasslands come alive with the addition of some lichen moss to simulate bushes and a variety of ready-made trees.

Chapter 6
TABLETOP LAYOUTS

The tabletop has always been considered the ultimate location for a model railroad. The table allows you to elevate the trains to a position nearer to eye level where they can look their best. Yes, you can lay on the floor and get an eye level view, but it's a lot easier if you can sit or stand to watch your trains run.

Plywood has been the traditional material for tabletops for most model railroads. Plywood, however, has two basic disadvantages: it is very heavy, and it is very expensive. Many model railroaders are using two sheets of one-inch thick Styrofoam (or an equivalent brand) white insulating foam for a tabletop. The two sheets of insulating foam are glued together with thick wallpaper paste. The sandwich of two layers of one-inch Styrofoam is stronger than a single two-inch thick sheet. You can cut the Styrofoam with a common serrated-edge kitchen knife as shown in Chapter 8.

The single one-inch thick sheet of Styrofoam can be glued to a sheet of 1/4-inch plywood if you want a sturdier support. Some modelers prefer to build a framework of 1 x 2 lumber, placed on edge, to create a series of 2 x 2-feet square boxes to support the Styrofoam.

Does The Tabletop Need Legs?

There's really no reason why you have to install legs beneath the tabletop. The tabletop can simply rest on a bed or even another table while the trains are in operation. If the layout is 4 x 6-feet or smaller it can be stored beneath most double beds when not in use. If the layout is larger than about 4 x 8-feet, however, it should have its own legs and supports.

The legs for the tabletop can be produced from a variety of products. Hardware stores sell screw-on leg-mounting plates that can be used with 2 x 2 lumber to make removable legs. The legs should be braced, however, with some pieces of 1 x 2 wood. You should decide how high you want your layout to be. Some people prefer the layout to be as high as 4 1/2-feet so they can stand and watch the trains, others prefer layouts as low as two-feet high so they can have a good overall view of the layout. It's your choice. The longer the legs, however, the more there is a need for some type of 1 x 2 wood bracing so the legs will not fold or wobble.

When you operate the trains on the table, rather than on the floor, you face a potential problem of not being able to reach across the table to the tracks and trains at the rear of the table. Most of us can only reach about 2 to 2 1/2-feet. If the layout is over four-feet wide (and nearly all of them are), then you must place one of the short ends of the layout against the wall or you will not be able to reach any derailed trains along the back edge.

The worst possible location, for even a 4 x 6-foot layout, is tucked into a corner, for there are two sides that cannot be reached. If the tabletop is placed on a bed or even in the middle of the floor, there's a far better chance you can find space to place one of the short ends against the wall so you can reach all parts of the layout.

Laying E-Z Track™ On a Tabletop

E-Z Track™ is designed so you can use conventional nails or even glues like Liquid Nails to attach it to a tabletop. However, there's a simpler way: two strips of double-stick carpet-laying tape can be used at each track joint to simply tape the track to the tabletop. The advantage of the tape system is that it is very easy to lift the track to move it or to replace a straight track with a switch. The photographs show the track being laid on a plywood tabletop, but the system works just as well on Styrofoam insulation board.

To lay the track, first mark the locations of the edges of the track and where each joint will rest with a pencil. Remove the paper backing from about three or four inches of the tape and press it over the junctions of the edges of the track and the track joints. Cut another three or four inch section of the tape. Apply the second piece of tape to the T-shaped junction of pencil marks on the other side of the track as shown in the photos.

Leave the paper backing on the top of the carpet-laying tape until you have all the pieces of tape pressed firmly in place. The paper backings can then be pulled from each of the strips. Finally, push the track firmly onto the exposed sticky side of the carpet-laying tape.

The white edges of the tape are visible sticking out from beneath the track. You can trim the edges with a sharp hobby or craft knife, or paint the tape green when you paint the rest of the tabletop.

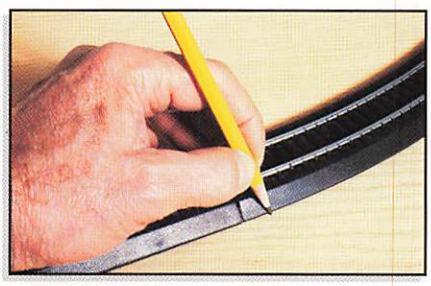
Track-Laying With Nails

Hobby shops and hardware stores sell number 19 x 1/2-inch or number 19 x 3/4-inch nails. I would suggest using 1/2-inch nails for mounting track on a plywood tabletop and 3/4-inch (or even one-inch, if you can find them) nails for mounting track on a Styrofoam tabletop. Each piece of E-Z Track™ has holes to fit these nails.

Use a small hammer or a nail set punch and hammer to drive the nails so you do not accidentally hammer on the tops of the rails. The nails must not touch the top of the ties or they can warp the track. The nails must also be below the level of the tops of the rails so the locomotives and rolling stock will not catch on the nail heads. To be sure the nails are driven in just far enough, make a small paper guide from a piece of business card. Cut a vee-shaped notch it the card and put the vee around the shank of the nail as shown in the photograph. Drive the nail in until the bottom of the nailhead just touches the paper.

Removing The Track

If you attempt to use the track itself to pry a nail from the layout, the track is most likely to break. A thick-bladed paint scraper is the best tool to use to pry up track. Wiggle the blade beneath the track until it contacts the shank of the nail, then pry and wiggle the blade until the nail is loose. Use a pair of needle nose pliers to grab the loosened head of the nail and pull it from the tabletop.

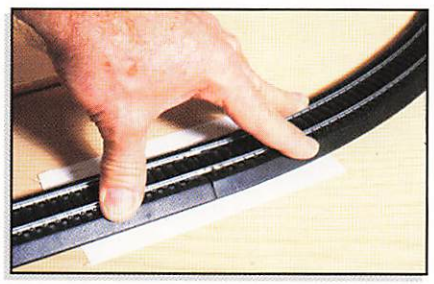


LAYING TRACK WITH CARPET TAPE:
Mark the locations of the edges of the track and the locations of each track joint on the tabletop with a pencil.

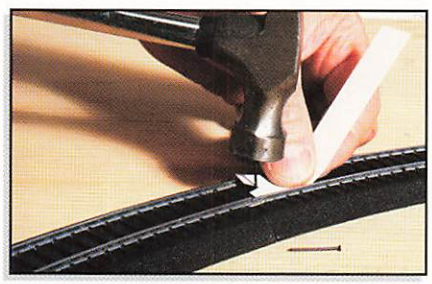
Pull one of the paper backings from the double-stick carpet-laying tape and stick the tape directly over the intersection of the track edges and track joint.

Cut a series of three or four-inch pieces of carpet-laying tape with a hobby or craft knife. Leave the top paper backing in place while you press the tape firmly onto the tabletop. Apply the tape to each intersection of a track edge and a track joint .

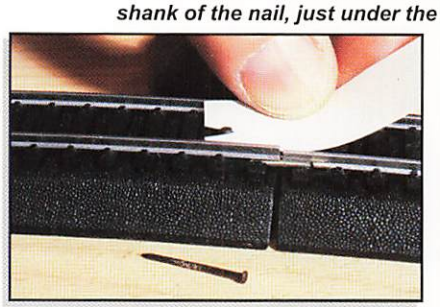
Pick at one corner of the tape, and the top paper backing should begin to lift. Peel the paper backing away to leave the sticky side of the tape exposed.



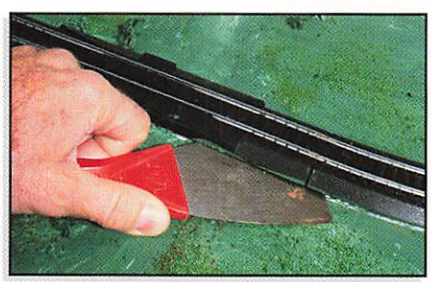
Press the track firmly onto the carpet-laying tape.



LAYING TRACK WITH NAILS:
If you decide to use nails to lay the track, make a tool from a piece of business card to keep the nail heads from touching the tops of the ties. Cut the business card to a half-inch width, then cut a "v"-shaped notch in one end. Slip the notch around the shank of the nail, just under the nail head.



Use a small hammer or hammer and nail punch to drive the nails so the hammer head does not hit the tops of the rails. The business card will help you see when the head of the nail is just about to touch the card. The nail should be driven in only far enough so you can easily remove the business card.



TO LIFT TRACK:
Wiggle a paint or putty spatula between the track and the tabletop until the spatula touches the shank of the nail. Gently pry the track upward until there is enough of the nail head exposed so you can grab the head with needle nose pliers. Use the pliers to pull the nail from the tabletop and track.

Chapter 7

PORTABLE SCENERY

Scenery is the term modelers use to describe the hills, mountains, trees, shrubs, streams and lakes that bring the "earth" to a model railroad. Usually, the scenery is constructed from plaster-soaked paper towels or carved from Styrofoam and coated with plaster. Scenery is a very permanent part of most model railroads.

If you are using E-Z Track™, especially for a first or second model railroad, consider making the scenery as portable as the track work. When you've operated the railroad for six months or so, and you're satisfied that this is the most interesting plan you can fit in the available space, then you may want to consider more permanent forms of scenery.

Green Fields and Meadows

Many model railroads have been built on bare plywood tabletops. Their builders hoped that, someday, they would find the time and energy to add more permanent scenery. In the meantime, that bare plywood made it difficult for even the most realistic trains and buildings to look their best. Paint the tabletop green, at least, so it looks like green fields or grassy meadows.

The tabletop can be painted green before you lay any track. That's the procedure that was used for Project Layout 3's 4 x 6-foot layout in Chapter 8. Alternatively, you can lay the track with self-sticking carpet-laying tape (as described in Chapter 6) and paint the visible tape while you paint the tabletop. Paint supply stores can mix grassy green in easy-to-use water-base latex interior wall paints. You might also want to buy some dark gray to use to make painted-on roads.

Grass, Bushes and Trees

Model railroad shops carry an interesting material made from ground foam rubber. The foam is dyed various shades of brown or green to represent a variety of plants. The ground foam is useful for simulating weeds and leaves. Just sprinkle the ground foam on the still-wet green latex paint. Use a vacuum cleaner to remove the excess ground foam after the paint dries.

Shops that carry model railroad supplies will also sell lichen moss. This natural growth is available dyed various shades of green, It can be used for bushes and small tress right out of the box. Just place the clumps of lichen moss on the layout. An alternative is a mesh material coated with ground foam and sold under the Woodland Scenics label. This material looks more realistic than lichen moss, but the particles of ground foam will shake loose. If you want truly portable scenery, with the least mess, use lichen.

Hobby shops will also be able to supply ready-made trees. Some of the trees have plastic trunks with clumps of lichen to represent the leaves. Other types of trees may be covered with ground foam. Still others are made from special bottle-type brushes that have been painted and treated with ground foam or other scatter material to represent leaves or clumps of pine needles. Most of these trees have bases so they are free-standing. If not, you can use some brown Das Pronto (or another brand) water-base modeling clay (available from most craft supply stores) to make a base for the tree that can simulate the root structure and support the tree.

Streams and Rivers

Make a portable stream from crumpled aluminum foil. The photographs illustrate the steps required. If you want to add a permanent lake or stream, use an Artists Gloss Medium available from art supply stores. This water-base fluid dries with a high gloss that looks like water. Paint it over the green latex "meadows" to simulate running streams or small ponds. Place clumps of lichen or ground foam along the edges of the stream or pond to disguise the fact that there is no earthen shoreline.

Removable Roads

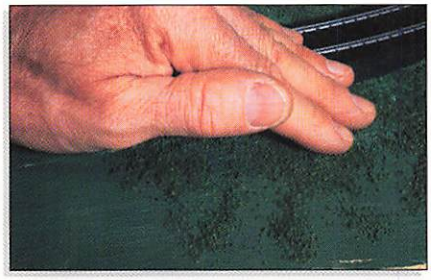
Craft supply stores sell a dense foam material that is a substitute for felt in some craft projects. The material is about as thick and flexible as felt but it has a texture more like cardboard. If you cannot locate it, use plain gray construction paper. Cut the foam or paper into strips about three-inches wide.

Stationery stores and some craft stores sell fine-tip pens that have white or yellow ink. Use one of these pens to draw the white or yellow lines down the center of the foam or paper roads.

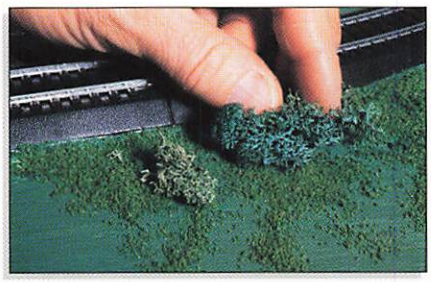
Place the roads right on top of the tabletop. Use the E-Z Track™ Terminal track as a railroad crossing. Rest the foam or paper roads against the edge of the Terminal track and hide the gaps with lichen as shown in the photographs. Bachmann and other firms have a variety of cars and trucks that can be used to provide simulated traffic on the roads.

GRASS, BUSHES, AND TREES:
Use a thick coat of latex interior wall paint to paint the plywood or Styrofoam tabletop.

For the look of weeds, sprinkle some green ground foam (available from hobby shops) onto the still wet latex paint.



Gently pat the foam to force it into the still-wet latex paint.

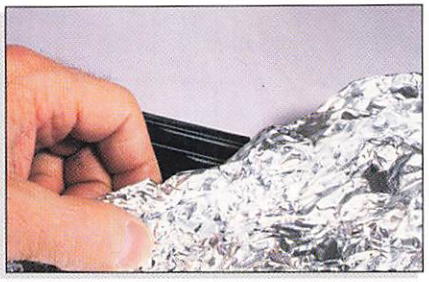


Lichen moss (again, available from hobby stores) can be used to represent small bushes.

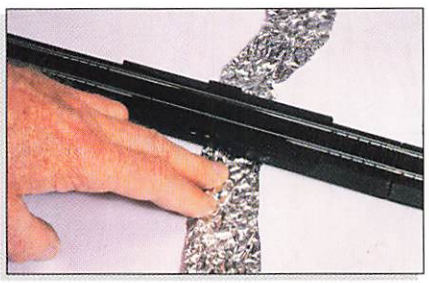
Woodland Scenics "Foliage" material is a mesh with ground foam glued in place. Cut the material into small clumps to simulate bushes.

A PORTABLE STREAM OR CREEK:
Cut some heavy-duty aluminum foil into a the shape of a wandering stream.

Roll the cut aluminum foil "stream" into a loose cylinder as shown.

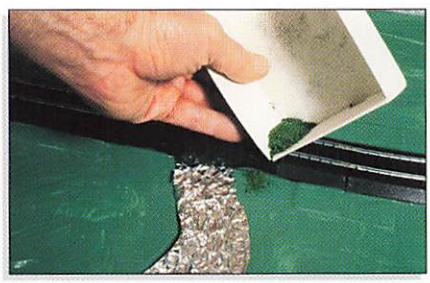


Carefully unfold the foil to avoid tearing the edges.



Flatten the foil and smooth it onto the tabletop. Curl the edges under slightly for the best effect.

Paint the tabletop grass green with latex interior wall paint as shown earlier in this chapter.

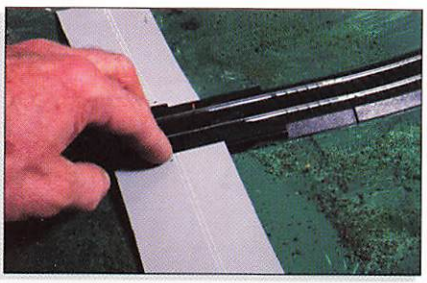


Sprinkle green ground foam onto the still-wet latex paint. Put larger clumps near the edge of the stream.

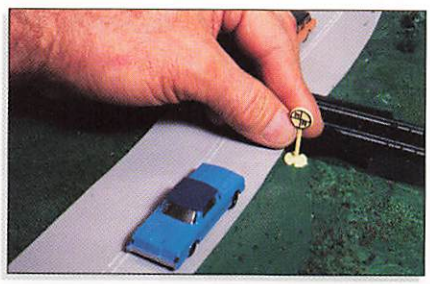
Cover the edges of the stream with lichen moss or Woodland Scenics "Foliage" material.

BUILD A REMOVABLE CONCRETE ROAD:
Craft supply stores sell this flexible foam material as a substitute for felt. If you cannot locate it, substitute plain gray construction paper. Cut the material into three-inch wide strips with scissors.

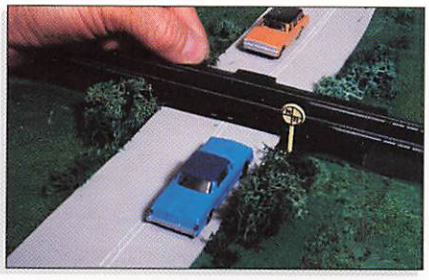
Larger stationery stores sell pens with white or yellow ink. Use the pen, guided by a ruler, to draw the two centerlines usually seen on highways.



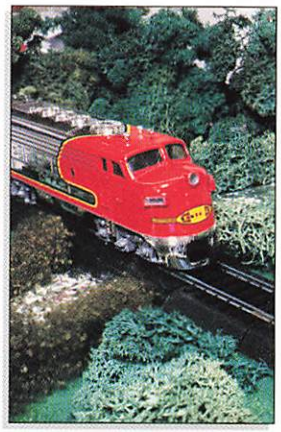
Lay the finished piece of foam rubber road against the side of the E-Z Track™ Terminal section. The track has a built-in railroad crossing. You can hold the road to the Terminal Track with a small piece of double-stick carpet tape.



Remember to install railroad crossing signs on both sides of the Terminal Track section. Bachmann (or your local hobby shop) carries a variety of signs for railroad crossings. Hold the sign in place with a dab of rubber cement (available from stationery stores) so you can pry it loose if you wish.



Fill-in the gaps between the road and the tabletop with small clumps of lichen. Add some highway vehicles (again, available from Bachmann or hobby shops) to finish the scene.



These are examples of Portable Scenery

Chapter 8

BUILD A TABLETOP LAYOUT

This 4 x 6-foot layout is an example of how much model railroading you can fit in a relatively small space. The layout is mounted on a tabletop. You can choose to make it into a free-standing table or just use the tabletop itself. If you opt for just the tabletop, you can store it beneath a bed and then use the bed to support the tabletop. You might also be able to use a desk or kitchen table to support the tabletop. (There's more information on building tabletop layouts in Chapter 6.)

Cutting The Styrofoam Tabletop

This particular layout's tabletop is made from a sandwich of one-inch thick Styrofoam insulation board and a piece of 1/2-inch plywood.

Use a straight piece of wood or a yard stick to draw the lines you want to cut onto the surface of the Styrofoam. Use a kitchen knife with a serrated edge to cut the Styrofoam. Use wallpaper paste to cement the Styrofoam to the plywood or to the second piece of Styrofoam.

For this particular layout, I decided that two-foot legs would be enough. I used simple metal brackets, purchased at a hardware store, to attach the ends of the legs to the underside of the table. Usually, a layout this size would have one of the narrower (four-foot) ends against a wall so you could reach all parts of the table. However, the extremely low table height made it possible for me to lean across the back of the table to reach any derailed cars almost three-feet from either edge of the 4 x 6-foot layout.

The Two-Train Layout

PLAN 7 is an example of how two ovals can be used, one inside the other, for two trains to operate at the same time. The inner oval is canted so it can be modified with a pair of switches to build track PLAN 8.

You will need two power packs to operate the two trains on this layout. The inner oval has two stub-ended sidings that can be used to represent two different towns. I'd suggest that the inner oval might be considered a branch line (on both of these plans) and the outer oval the mainline. The outer oval has a passing siding.

Project Layout 3, the Two-Lap Layout

The trackage on PLAN 8 can only be used by one train. Yes, it is possible to operate two trains on a one-track layout like this, but several on-off switches, plastic insulated rail joiners and wires must be used. For information on wiring for two-train operations on the same tracks, I would suggest you purchase one of the books that are available at hobby stores specializing in model railroad products.

This layout is an adaptation of PLAN 7. A pair of switches have been added to connect the inner and outer ovals. Note that the switch for one of the sidings has been replaced so that two switches are located on curves, on opposite sides of the layout, to preserve the geometry and track alignment as described in Chapter 4.

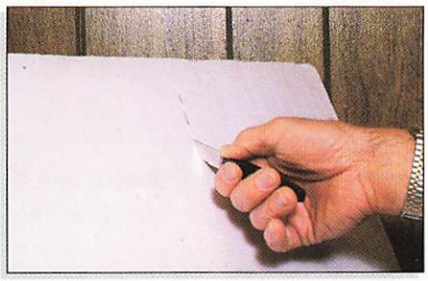
This layout can be operated using the point-to-point system described in Chapter 9 or as a continuous route on the two ovals. The passing siding can be used as run-around track (again as described in Chapter 9) to increase the possibilities for switching the two stub ended sidings on the inner oval.

Scenery For a Tabletop Layout

I elected to paint the surface of the layout green with a gray stripe for one of the roads. The additional roads are made with foam sheets from a craft store. The techniques are described in Chapter 7. The conventional forms of scenery construction described in various model railroad books can, of course, be used on this layout.

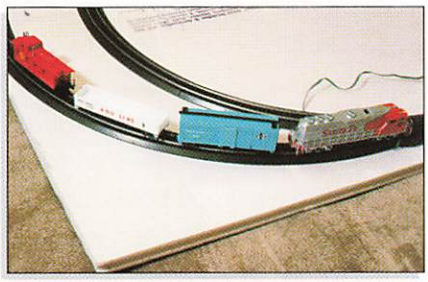
I would suggest that you consider operating this layout with removable or portable scenery so you can alter the track plan whenever the whim strikes you. There's really no reason why the track needs to be nailed or taped in place unless you want to tilt the tabletop so you can store it against a wall.

The scenery is simply clumps of lichen moss and ready-made trees purchased for a hobby store that specializes in model railroad supplies. The method of using green or white felt for scenery that is shown in Chapter 5 could certainly be used on this tabletop layout. The felt allows you to change the scenery as easily and quickly as you can change the track plan.



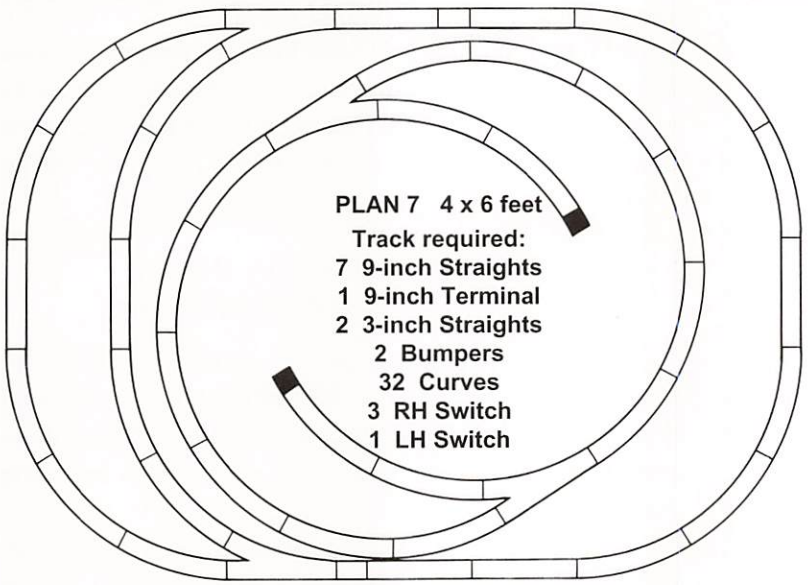
PROJECT LAYOUT 3:
Use a kitchen knife with a serrated edge to cut the Styrofoam panels to the desired size.

The tabletop has been painted green with a gray stripe to simulate part of a road. A piece of sawdust-covered paper is used in one corner to suggest the possible location for a hill. This is the two-lap layout, for operating one train, in PLAN 8.

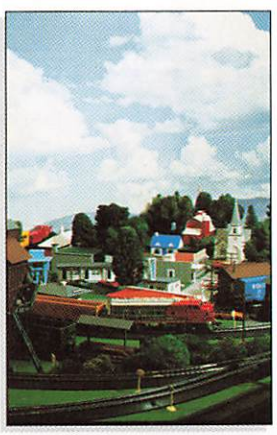


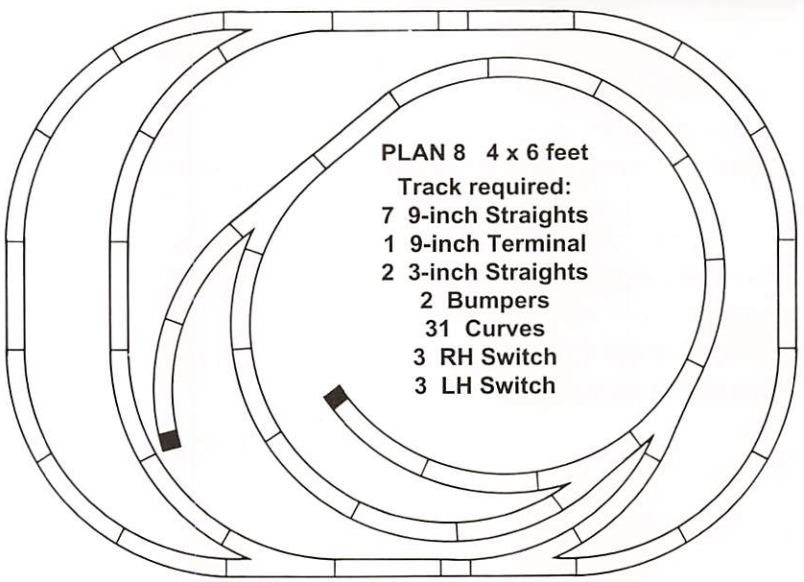
E-Z Track™ can simply rest on the tabletop. It does not need to be held in place with either nails or carpet tape unless you want to be able to tilt the tabletop on its side.

Roads, cars, and a selection of plastic buildings from Bachmann's Plasticville, USA® series bring life to the layout.



The scenery is simply clumps of lichen moss and ready-made trees.





Chapter 9

ADVANCED TRACK PLANS

Model railroading is an exciting hobby. It's thrilling to see a layout you created in action, with the trains snaking through the curves, streaking down the straights and diving through the trees or tunnels.

Most of that excitement is available, if you use just a bit of imagination, on a simple oval. All of the track plans in this book feature oval-style operations in a wide array of shapes. These plans disguise the simple oval with a variety of track patterns that are replicas of those that appear on real railroads. The larger and the more real railroad-like the layout, however, the less you need to use your imagination!

Continuous Track Plans

Real railroads run their tracks for hundreds and thousands of miles—-we only have a few dozen feet of track. The best way to make that short bit of track seem longer is to run the train over it while imagining you are seeing the train at a different spot along the mainline each time its passes, or that we're simply seeing a different train each time. It works!

Even a continuous run can be more exciting, however, if there are some alternate passing sidings that the train can take every other lap or so. It's also interesting to see the train take an entirely different route every other lap. You'll find examples of both these two-lap (and three-lap) runs (and a variety of passing sidings) on the track plans in this chapter and in Chapter 4.

Point-to-Point Operations

Real railroads carry goods and people from one place to another. Modelers call that type of operation "point-to-point" to distinguish it from round-and-round operations on ovals. Some model railroaders actually build layouts that start at one yard and end at another. There are two drawbacks to this pure point-to-point design: First, the trains must be turned, in some way, at each of the terminals, and that can become tiresome after a while. Second, there's no chance to just let the trains run like you can on an oval.

It is easy enough to make even a simple oval into a point-to-point plan if you use a bit of imagination. The project layout (with green felt for scenery) in Chapter 5 and PLANS 14 and 20 are some examples. The inner oval on each of these three layouts has two simple stub-ended sidings. A train can start its route coming out of one of these sidings (call it "Point A"), make one or more laps around the oval and pull into the second stub-ended siding (call it "Point B"). The train will have traveled from point-to-point very much like all real railroad trains.

That point-to-point concept can also be used to route trains over the tracks in PLAN 11, in this chapter. Start the train on either stub-ended siding, run it around the folded-loop-style oval and back into the other stub-ended siding. The point-to-point concept of operations also works well with PLAN 17. Here, a four-track yard is the starting "point" and a second four-track yard the ending "point".

Using the Passing Siding for Run-Around Operations

A siding with a switch on both ends is usually called a "passing siding" or, in some publications, a "through siding". The passing sidings on many of these plans provide places for alternate routes or for use in switching operations as a "run-around" track.

I'll use PLAN 9 as an example of a "run-around" operation on a passing siding: if a train is running around this layout in a clockwise direction, the locomotive can stop and back one or more cars into any of the four stub-ended sidings. If the train is running counterclockwise, however, the movements to put cars into those sidings are more complicated. The train must stop on the passing siding while the locomotive uncouples and runs forward through the switch. The locomotive alone then backs up through the empty track on the passing siding, through the second switch and on behind its train. The locomotive then pulls forward so it is now pushing the train. When it is pushing the train, it can put any or all of the cars into any of the four stub-ended sidings.

The movement of the locomotive, from pulling the front of the train to pushing the rear of the train is called a "run-around". It makes it much more interesting to switch cars into sidings than to just back them in. On a real railroad, about half of the switching movements of trains require the use of "run-around" track, so you are duplicating another fascinating aspect of reality in miniature.

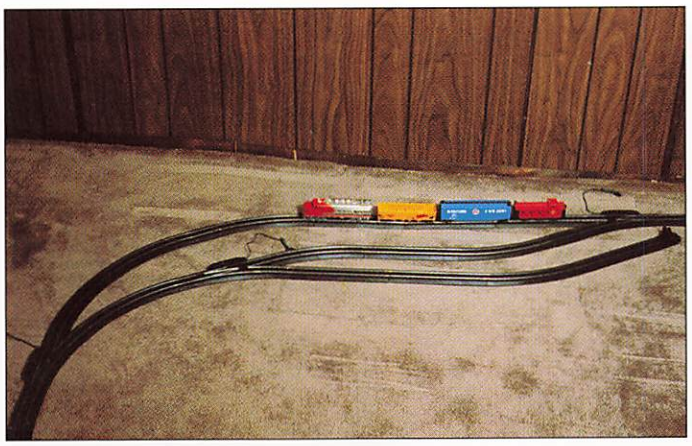
Snaking Through The "S" Curves

The "S"-shaped track pattern is one that makes both model and real train operations look especially interesting. Track PLANS 4, 11, 12 and 13 all include stretches of track where the train is forced to turn right, then left, through an "S" curve.

The "S" curve, however, is a place where the train can derail easily if it changes directions too quickly. It is wise to have 6 to 9-inches of straight track between any change of direction from right to left or left to right. These plans all include that feature. It saves troublesome derailments and it looks more realistic when the trains travel through the "S" curve. The trains gently shift and flow from right to left without any uncharacteristic lurching movements.

Design Your Own Model Railroad

E-Z Track™ makes it easier than ever to change or rebuild a layout. That's one reason I would suggest you wait for many months before attaching the track permanently to a tabletop (if you decide you even want a tabletop layout).

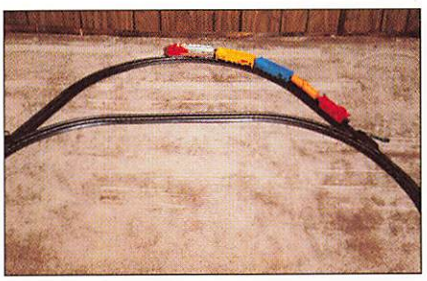


This is how the passing siding used on PLAN 12 and PLAN 13 looks when assembled with E-Z Track™.

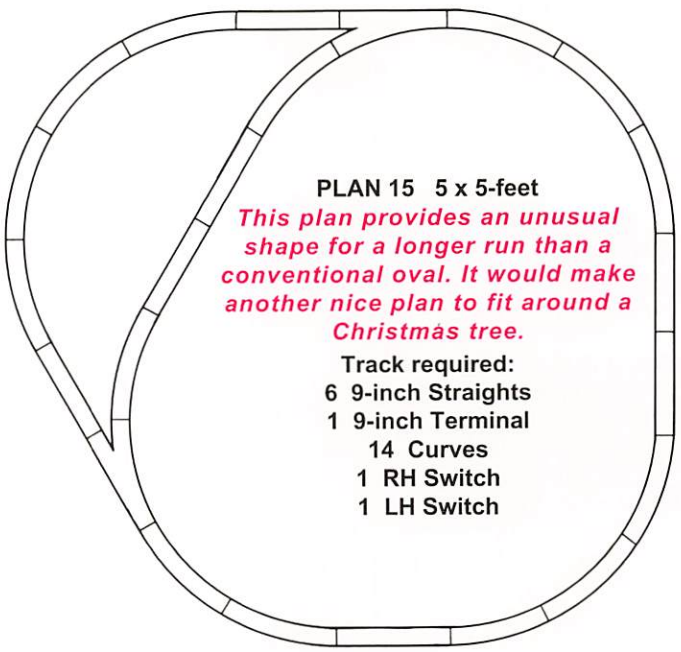
Experiment with track designs and run trains over the layout to see what you like and what you don't. Add and remove sections from layouts built from these published plans until you become familiar with the proper alignment of the tracks in this standard HO scale sectional track system. The basic rules for adding and subtracting switches and track sections are illustrated in Chapter 4.

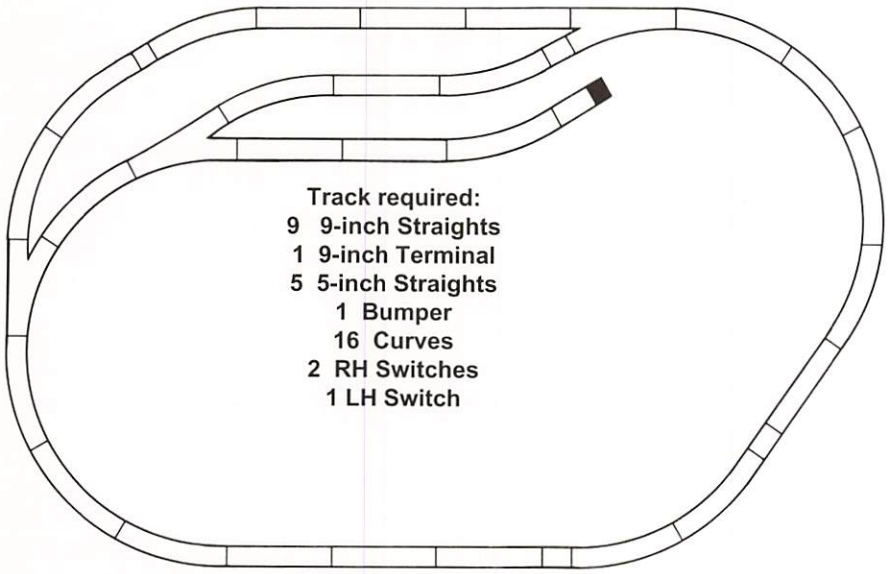
When you're comfortable with building and modifying existing plans, try selecting elements of one plan and combining them with another. That's how many of these plans were developed. The expansion of the simple oval into a larger layout, or even one with two or three laps (or for two or three trains) as shown in Chapter 4, are typical examples of combining track planning ideas.

The basic layout shape in PLAN 15, in this chapter, was mixed with the four-track yard from PLANS 9 or 17 to create PLAN 16. The yard itself was mirrored to produce the two yards for PLAN 17. The photographs show how that yard can be further modified and extended. The interesting passing and stub-end siding track arrangement in PLAN 12 was duplicated and turned 180-degrees to create PLAN 13.



A passing siding can be added to one corner of some plans using E-Z Track™. This same siding appears in PLAN 15 and PLAN 16.

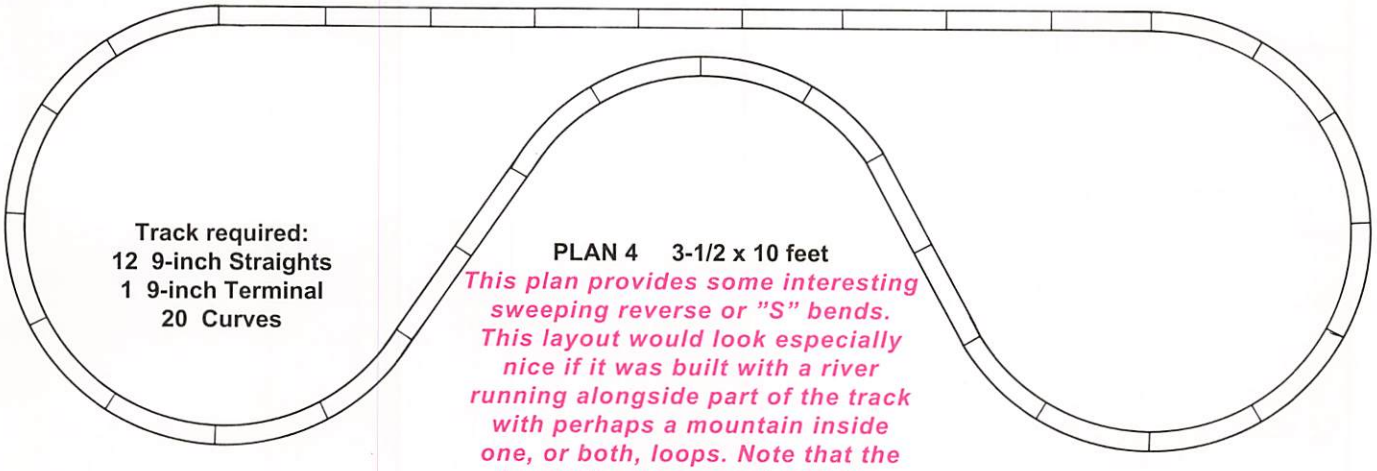

PLAN 15 5 x 5-feet
This plan provides an unusual shape for a longer run than a conventional oval. It would make another nice plan to fit around a Christmas tree.
Track required:
6 9-inch Straights
1 9-inch Terminal
14 Curves
1 RH Switch
1 LH Switch



Track required:
9 9-inch Straights
1 9-inch Terminal
5 5-inch Straights
1 Bumper
16 Curves
2 RH Switches
1 LH Switch

PLAN 12 4-1/2 x 7-feet

This unusual plan is the result of adding a passing siding to one side of an oval while still retaining correct alignment at all track joints. The stub-ended siding is optional but improves the appearance of the plan. PLAN 13 is the two-passing siding version of this plan for the same space.



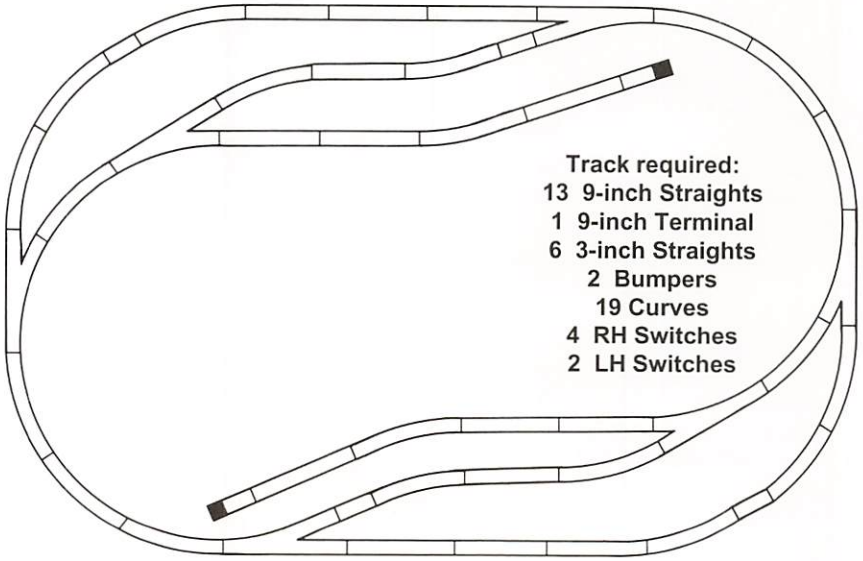
Track required:
12 9-inch Straights
1 9-inch Terminal
20 Curves

PLAN 4 3-1/2 x 10 feet

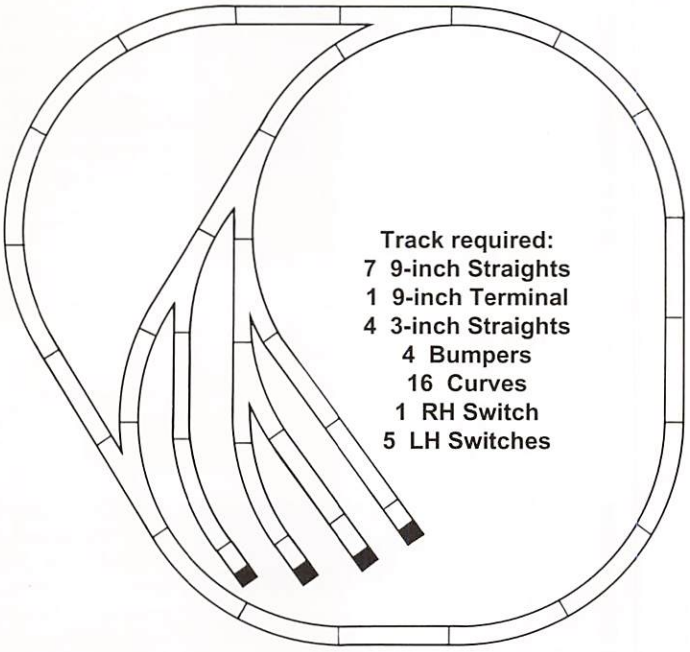
This plan provides some interesting sweeping reverse or "S" bends. This layout would look especially nice if it was built with a river running alongside part of the track with perhaps a mountain inside one, or both, loops. Note that the loops do not connect with the straights.

PLAN 13 4-1/2 x 7-feet

This is a two-passing siding version of PLAN 12. If a row of hills were placed down the middle of the plan, it would make a view block so two separate towns, or perhaps, a town and a mine or sawmill, could be used on the same layout.

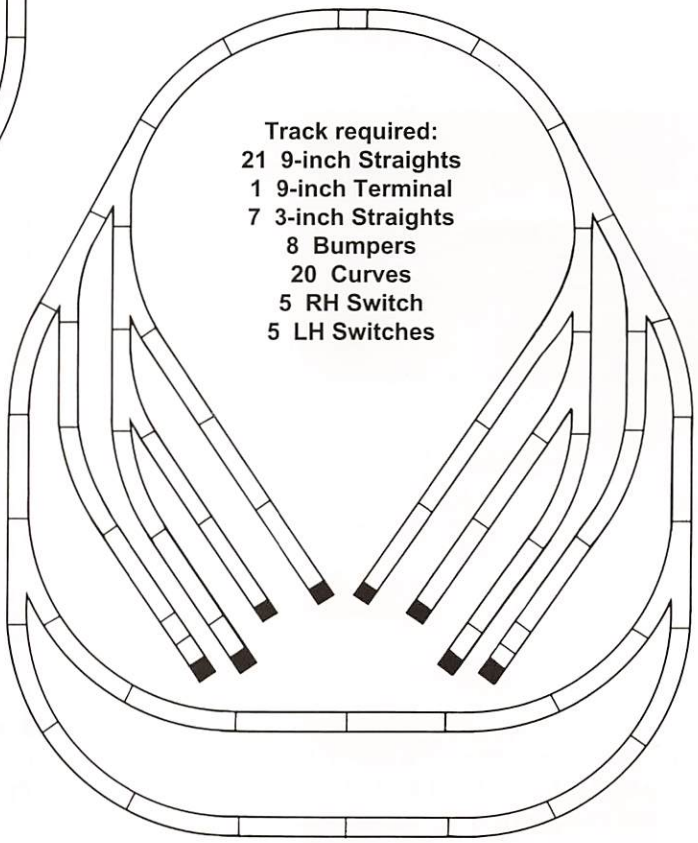


Track required:
13 9-inch Straights
1 9-inch Terminal
6 3-inch Straights
2 Bumpers
19 Curves
4 RH Switches
2 LH Switches



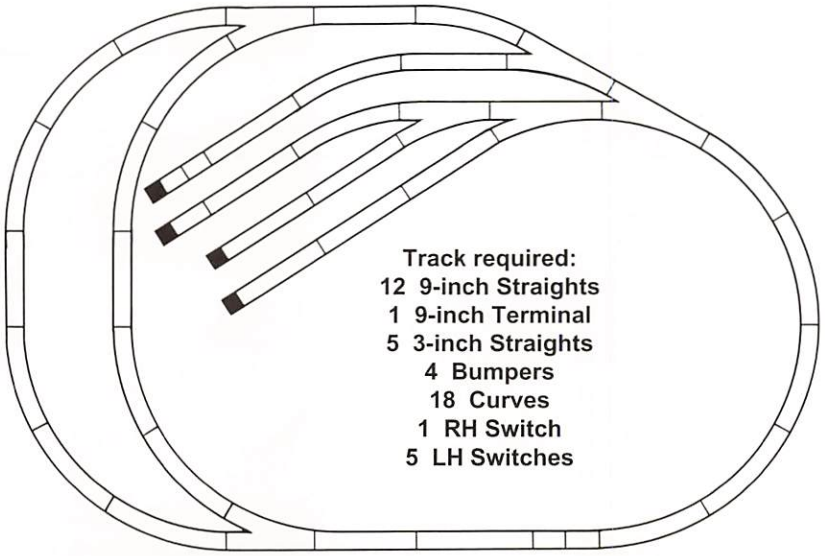
PLAN 16 5 x 5 feet

This plan is a development of PLAN 15. A four-track yard has been added. The ends of each of the stub-end sidings have been extended to a maximum length with pieces of 3-inch straight track. A version of this plan for a 4 x 6 1/2-foot area appears in PLAN 9.



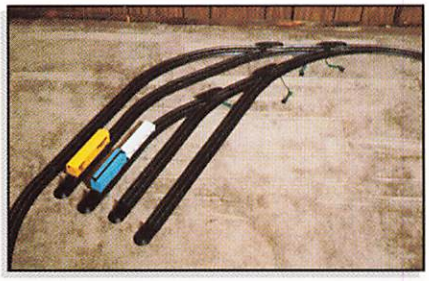
PLAN 17 5 x 6-1/2 feet

This plan has two yards to simulate point-to-point operations between major cities. The passing siding can be used to switch cars into either yard. The oval allows several laps of running between the two yards to simulate long distances.

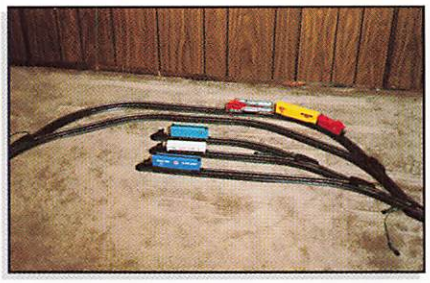


PLAN 9 4 x 6-1/2-feet

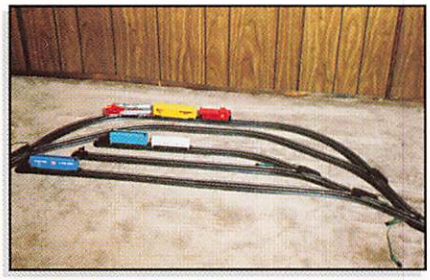
This is an adaptation of PLAN 16 to fit it into an area that would fit beneath a double bed. It includes a passing siding plus a four-track yard.



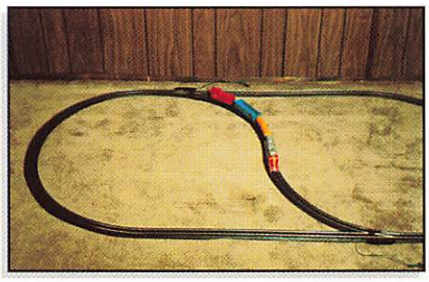
The four-track yard from PLAN 16 can be used on a variety of layouts. Here is how it appears when assembled with E-Z Track™.



The longest stub ended track in PLAN 16 can be joined to the outer track to become a passing siding. The track arrangement on the opposite end is a mirror image of PLAN 16.



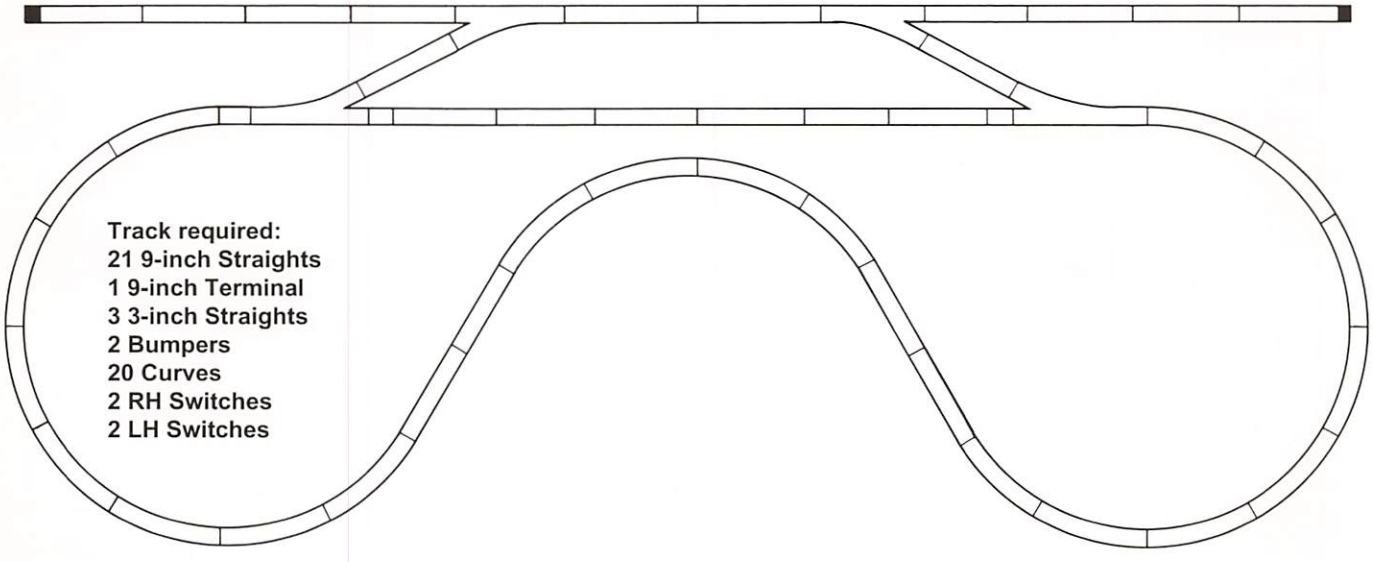
Here, the stub-end tracks have been extended to fit inside the passing track to give the appearance of a major yard. This yard can be built on a 3 x 9-foot shelf.



DO NOT arrange the track in a reverse loop like this. Yes, it will allow the train to turn around, but a short circuit will result unless some special insulated rail joiners and reversing electrical switch is used. Model railroad shops sell books that describe how to wire reverse loops but it is beyond the scope of this book. It's best to stick to simple bent ovals or "dog bone" style ovals like PLANS 4 and 11 for your first few layouts.

PLAN 11 4 x 10 feet

This plan is a development of PLAN 4 with a passing siding and two stub-ended sidings. The layout could be used for point-to-point operations by starting a train at one stub-ended siding, running it around the dogbone-shaped oval, and back into the opposite stub-ended siding. Note, again, that the loops do not touch the straight.



Track required:
21 9-inch Straights
1 9-inch Terminal
3 3-inch Straights
2 Bumpers
20 Curves
2 RH Switches
2 LH Switches

Chapter 10

TROUBLESHOOTING

PROBLEM: CARS OR LOCOMOTIVES DERAIL

SOLUTIONS (in order of most-likely occurring problem)

1. Check the track joints, misaligned rails will cause derailments. Connect the track properly and use needlenose pliers to press any loose rail joiners properly against the bottom web of the rail. Check alignment by running your finger lightly over the top of the rails. You'll feel any bump or distortion.

2. Slow down, too high a speed causes derailments, especially on curves.

3. String, balls of lint, grass, Christmas tree needles or other debris on track or jammed into the gaps in the switches where the wheel flanges must ride. Clean the offending debris from the track.

4. Check the trucks of the derailed car. Wheel sets (the pair of wheels and axle) partially out of the trucks or a collection of lint or dirt on the wheels will cause derailments. Be sure wheels spin freely. Clean any dirt or lint with a damp, lint-free rag.

5. Buildings, signs, bridges or scenery too close to track so the cars sideswipe them. Move the offending object away from the track.

6. Couplers or other parts hanging below the car snag on the ties or on the rails at switches. Install the couplers firmly in their snap-in mounts and remove any improper dangling objects from bottom of car or coupler.

7. If your layout includes switches, check to be sure the moving parts of the switch (the points) are firmly in contact with one of the rails when the switch-control button is moved fully in that direction.

8. Track layout assembled with right and left curves joined with no straight track sections in between. These tight "S" bends can cause derailments. Insert a standard nine-inch E-Z Track™ straight between any curves that change direction from right to left or left to right. The straights are also needed where curves form "S" bends with the curved routes of turnouts.

9. Cars too long for track. Some of the 12-inch long freight cars and passenger cars might derail on the 18-inch radius curves that are standard in nearly all train sets and that are the standard E-Z Track™ curves. Try placing derailment-prone car directly behind locomotive. Operate with shorter cars.

10. If nails were used to install track, check to be sure the nails are not driven in so tight that they distort the track or so loose that the nail heads hit the couplers or bottoms of the cars. Pry the nails up a bit or push the nails in so the nailhead just clears the top of the tie by the thickness of a piece of paper.

11. The rails may be bent so they are too close together or too far apart, or simply have kinks. Check the piece of track by comparing it to another and correct any misshapen rails by bending them gently with needlenose pliers. If the rails have popped out of the ties, it is sometimes possible to push them back gently into place and hold them there with Super Glue or similar cyanoacrylate cements. However, if the small simulated spikes that hold the rail were broken when the rail was popped free of the ties, the track section will probably have to be replaced with a new one.

PROBLEM: LOCOMOTIVE RUNS ERRATICALLY

SOLUTIONS (in order of most-likely occurring problem):

1. Most locomotives will shudder or stall slightly when traveling over switches. Use slightly more throttle while the locomotive crosses over any switch.

2. Dirty track. Clean the track with a hard rubber track-cleaning eraser (available from hobby shops).

3. Loose track connections. Push each pair of track sections firmly together.

4. Loose rail joiners. Use needle nose pliers to tighten the rail joiners on the track sections near where the locomotive runs erratically.

5. Dirty locomotive wheels. Use the hard rubber track cleaning eraser to clean the locomotive wheels.

PROBLEM: LOCOMOTIVE WON'T RUN AT ALL

SOLUTIONS (in order of most-likely occurring problem):

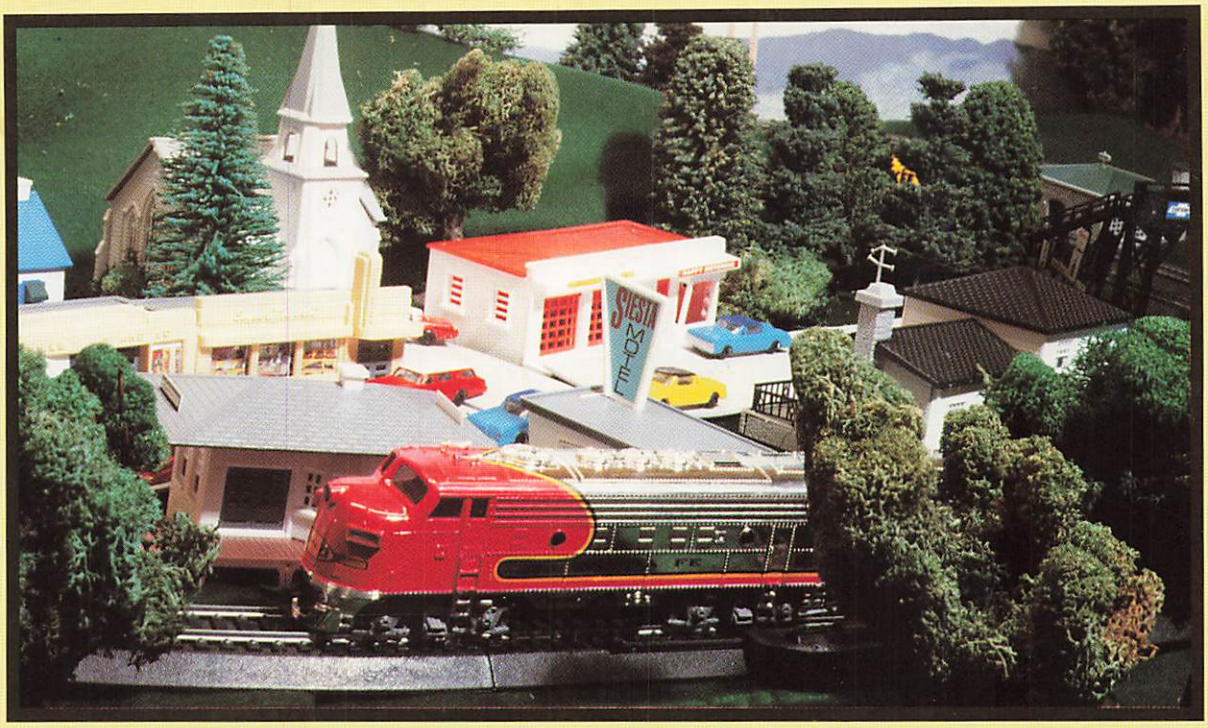
1-5. See Solutions 1 through 5, above, for "Train Runs Erratically".

6. The power pack may not be plugged into the wall, or the connections between the power pack and the track may be loose. Check all wire connections.

7. The power pack may be damaged. Borrow another power pack and install it to see if that solves the problem.

8. The locomotive may be damaged internally. Try another locomotive with the same power pack.

9. Some metal object may be laying between the rails. Check every inch of the rack for metal objects causing a short circuit.



IN THIS BOOK:

Step-by-Step Instructions

Showing you how to build a permanent or portable HO scale model railroad layout with Bachmann Industries' E-Z Track™ System.

- Getting started
- Snap-together track and switch assembly
- Plug-in wiring
- 20 track plans and 3 project layouts for floor or tabletop
- Quick and easy scenery including portable mountains, rivers and roads
- Troubleshooting tips
- All-color photos throughout

Novice and master railroaders alike will appreciate how Bachmann's E-Z Track™ System makes layout construction quick, "E-Z" and fun!

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